POPULAR Computing WEEKLY

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NEWS DESK

Sugar raises price of Amstrad PC – entry level 1512 now over £500

Tandy hits software problems on its PC

IJK denies piracy claim by Mastertronic



Star Trek



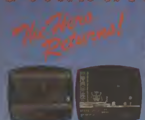
Special preview Star Trek – the Rebel Universe

see page 14

HARDWARE

- Designer joysticks
- Disciple – new Spectrum interface
- The Omnireader


DYNAMITE DAN II


The Hero Returns!

GAMES▶

◀SOFTWARE



HARDWARE▶

The Euromax Joyball

◀PROGRAMMING

REGULARS▶

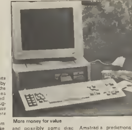
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Amstrad: a Yen to raise prices


More money for value

AMSTRAD has celebrated its 300 000th PC order with a price increase averaging 12 per cent on the range The new prices range from £529 for the monochrome single floppy machine to £1 258 for the colour machine with 20Mb hard disc

The price rises technically don t come into effect until January but as orders placed now won t be delivered until after that it s unlikely that any body ordering now will be able to get a machine at the old price

Amstrad puts the price rises partially down to the strength of the Yen which has forced the cost of its Japanese components up by 20 per cent Prices of the other Amstrad machines have not been increased however A spokesman suggested that this was because the components were different

Japanese sourced components are however unlikely to make up much of the total production cost of the machines as Amstrad manufactures in Korea and uses components from a variety of countries in all its machines The main Japanese input in the PC will therefore be the more complex of the chips, and possibly some disc drives The lower tech circuitry and raw materials will generally come from countries like Taiwan Korea and Malaysia

Demand was however another factor in the decision to raise prices Advance orders have already exceeded Amstrad s predictions for sales this year but have been more heavily loaded towards the hard disc machines than the company expected and have almost certainly harmed sales of the PCWs The price rise therefore has the effect of taking some of the heat off the PCW

Apple's new UK show

A couple of weeks ago I wrote in a preview of Apple s new IIGS that the UK company was lacking in initiative compared to the American parent

I take it back

The change of heart has been brought about by the AppleWorld exhibition and conference in London last week

There was none of the claustrophobia or rugby scrums usually associated with computer fairs Instead as you d expect from Apple the show was cool and very stylish

Star of the show was the IIGS running some very impressive sound and graphics demos

But the bulk of the exhibitors were supporting the Mac Arranged in four sections covering education business communications and desktop publishing the show saw the launch of a couple of new products

First was *Microsoft Works* an integrated software package in direct competition with Lotus s *Jazz* offering word processor spreadsheet graphics database and comms for £250

The second launch was of Ashton Tate s first Mac product a version of *dBase* (no price yet)

Other interesting stuff included add-on screens giving 1024 × 1024 resolution colour laser printers and the ultimate computer printer a Linotron 100 giving a resolution of more than 1 000 dots per inch

Not the kind of stuff that most of us can afford but we can dream can t we?

Peter Worlock

Due to the *Popular* printer copping out at the last minute the last 13 lines of Ken Smith's Minz program were omitted when it was published

So, here they are below Also, you can still obtain a copy of the game direct from Ken

```
21434 DATA[illegible] 150 157 140 14[illegible] 1[illegible] 153 148 218 [illegible] 224 [illegible]
2143[illegible] DATA[illegible] 157 157 36 142 1[illegible] 157 157 1[illegible] 141 1[illegible]
2143[illegible] DATA[illegible]
2143[illegible] DATA[illegible] 15[illegible] 157 0 138 [illegible] 224 1[illegible]
2143[illegible] DATA[illegible] 5 [illegible] 85 [illegible] 21 12[illegible] 255
2143[illegible] DATA[illegible] 64 04 [illegible] 85 [illegible] 84
2144[illegible] DATA[illegible] 21 [illegible] 5 1 1
21441 DATA1[illegible] 10 10 [illegible] 178 1[illegible] 178 17[illegible]
21442 DATA2 4 [illegible] 178 0 0 128 160 168 168 1[illegible]
21443 DATA[illegible] 178 1[illegible] 251 251 251 251 178 178 255 [illegible]
21444 DATA1[illegible] 255 255 1[illegible] 12[illegible] 192
21445 DATA240 236 255 255 [illegible] 124 252 23[illegible] 2[illegible]
21446 DATA240 188 25[illegible] [illegible]4
```

Atari repays development grant

ATARI has repaid grants worth £2 6 million to the Irish Industrial Development Agency after its failure to complete work on a computer factory in Limerick The factory was originally planned when Atari was owned by Warner Brothers

Work was abandoned on the factory following Jack Tramiel s takeover two years ago Atari currently produces most of its micros in Taiwan although Tramiel has in the past expressed his intention to manufacture in the US

Dedicated games

CDS Software is getting into the hardware market and is to sell a range of hand held and table-top games machines from Systema The range includes dedicated chess and bridge machines and also extends to draughts backgammon Reversi and Four in a Line Prices start at £19 95 and go up to £199 95 for the *Turbostar* chess machine

Trouble for Tandy's PC

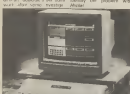
TANDY'S new cut price PC the 1000EX has run into compatibility problems. The machine does run most industry standard applications programs but its aptitude in the games market is not so clear cut and embarrassingly for Tandy it won't run one of the games Tandy intends to sell alongside it.

The problem with the game *Hacker* seems to relate to the Tandy's non-standard keyboard. *Hacker* will load into the machine which is probably why it got through Tandy's checking procedure but as you can't use the cursor keys you can't get past the second screen.

Other games are similarly difficult. Sublogic's *Jet* does work after some investigation but instead of the throttle controls being the plus and minus keys as normal they are cursor right and cursor down. Microprose's *F 15 Strike Eagle* has a nasty problem with the toggle between front and rear view (once you've done it once it keeps doing it) while *Boulder Dash* and *Boulder Dash II* again have cursor problems.

Some of these games will be playable with a joystick as unlike the Amstrad PC the Tandy has a PC standard joystick port and therefore even if the keyboard won't work the joystick should.

Tandy is meanwhile supplying Activision with a 1000EX in an attempt to identify the problem with *Hacker*.



The Tandy 1000EX

British games tilt at French awards

BRITISH software has been winning European awards recently – Palace Software's *Cauldron II* took the *Tilt* award for the best game of the year. *Tilt* is the leading French games magazine and its readers are obviously *Cauldron* fans: last year the accolade for the best overseas arcade adventure went to *Cauldron I*.

Gremlin Graphic's *Way of the Tiger* also won one of the *Tilt* awards (for the best Amstrad game of the year) as did US company Microprose's *Silent Service*, available in the UK through US Gold.

Tilt also awarded a Golden Tilt to Anita Sinclair's *Pawn*, the highly acclaimed graphic adventure published by Rainbird, for the quality of its graphics. *The Pawn* has also gained adventure awards from the German magazines *Happy Computer* and *64'er*.

Software Hotlines

English Software, well-known mainly as a company still producing titles specifically for the Atari 8 bits turns its attention to the Amstrad CPCs and the ST for its next two releases.

O-Ball for the ST may sound like a Snooker game but not if you talk to **English** boss Philip Morris. 'Well no, it's not exactly Pool or Snooker but you'll have all the balls on screen – they'll all rotate independently – and you'll be able to view it from any angle.'

Make of that what you will – a cross between Pool and a Newton's Cradle – and watch this space for further clarification.

On the Amstrad CPCs **English** is converting *ElektraGlide*, the racing game with a somewhat surreal touch. It should be out in a week or so at £8.95 (tape), £14.95 (disc). Also Popular will be running an *ElektraGlide* competition next week so keep your eyes peeled.

MikroGen's latest, *Cop-Out*, a shoot em up, gets a thorough play test at the final of **MikroGen's** National Computer Games Championship, being held this week at the Savoy Grill in London.

More championships from **CDB**, the publisher of *Colossus Chess*, which is sponsoring a Chess competition under the auspices of the British Chess Federation Junior Division and BBC's Ceefax service. Contestants are being picked through secondary schools.

The big surprise about **Ariolasoft**'s **Zarjas**, a fast action shoot em up (has any company ever advertised a slow-action shoot em up?) is that it's got nothing to do with llamaphile Jeff Minter. Coming out on **Ariola's Reaktor** label next month it mainly comprises blasting everything in sight to bits in a state of suppressed panic.

It is now a well known fact that **Geoff Crammond's** *Sentinel* (to be released on BBC B and Commodore 64 very soon – full review within these pages next week) has fifty zillion levels (OK then – 10,000) and each can only be accessed via a secret eight figure code. Now Geoff (it is said) has developed some wizzo system for encrypting these codes so the only way into the various levels will be by playing the thing from level zero and considering it took me a weekend to get to level 253 this is no pushover.

'Hacking into the program will be useless' says a **Firebird** spokesperson 'because even if someone gets through there are a totally false set of numbers just to put you off.' Will the *Sentinel* code ever be broken? **Firebird** remains adamant – no way, it says. Me? I give it three weeks max.





Sentinel

Beyond is brought from the cold


We ve orders to return to Federation territory captain '

BEYOND S career as a sepa rate entity is now over according to BT Telecomsoft head Ederyn Williams In the past few months it has lost publisher Francis Lee and marketing manager Marc Pearson and rather than replace these two Williams has taken the opportunity to merge it more closely into BT s mid range operation which now consists of Firebird Gold Odin and Beyond

These three will now be run as separate labels by a more centralised product on team with the different labels being used to differentiate between different kinds of software and Beyond in particular concentrating on quasi adventures and licensing deals Significantly Williams refers to these as the label s existing specialisations although *Star Trek* is actually only the second such deal Beyond has been involved in The first was last year s disastrous *Superman* game

Williams feels that more centralisation will be good for the BT labels making them more flexible and easier to run In this business it s no longer easy for a small unit even within a big one

The merger should go some way to decrease friction within Telecomsoft where staff have spoken of resentment at the way the label sometimes seemed to be run Williams says that the reorganisation had been talked about before the departure of Lee and Peirson but confirms that their leaving also had an influence

IJK denies piracy claim

IJK Software which last week was at the centre of two separate piracy storms has laid the blame at the door of the programmer in both cases Ian Sinclair of IJK accepts that its *Crimebusters Inc* is similar to Mastertronic s *Spellbound* but says that he released the game without being aware of this

We hadn t seen *Spellbound* until Mastertronic contacted us but within half an hour we d withdrawn it from sale Copies of the game are now being destroyed as they come back to IJK Any software house in the country is open to things like this says Sinclair I just worry about how much of it can go on

Mastertronic itself is now pursuing the matter with the programmer who has been given the option of admitting guilt or being sued I d like it to be known to any software house not to go near the guy says Alison Beasley of Mastertronic

The second clash between IJK and Audiogenic seems to be more complex Audiogenic s *The Last of the Free* and IJK s *Quest for Freedom* are very similar and were written by the same author but Sinclair claims IJK had the program first We payed him £300 for exclusive rights early in 1986 and we made it clear that we would not release it until Christmas

The programmer seems to have signed with both IJK and Audiogenic but Sinclair insists that he signed with IJK first Neither software house has as yet seen the other s product but it seems unlikely that the matter will go any further I m prepared at this stage to accept that Audiogenic published it in good faith says Sinclair

Commodore predicts profit

COMMODORE moved a little further back from the precipice last week agreeing new credit terms and predicting that it would show a profit for the second successive quarter

The new agreement gives Commodore a worldwide credit limit of £140 million slightly up from the previous figure of £135 million and is due to be signed later this month The results for the quarter ended September 30 are due for announcement later this year

Budget PC software producer aims for the big time

US cut-price software producer Migent International is set to move into the European market with one of the best bargains ever to be offered in the PC sector The company is selling *Ability* one of the most highly regarded integrated packages in the US at an introductory price of £69 95 (it s normally £99 95) and is offering free training for dealers in the use of the package

According to Migent managing director Chuck Hamilton the aim of this is to ensure that practically every dealer in the country knows how to use the package and to take Migent up into the big league alongside Ashton Tate and Lotus

Migent certainly has a lot more experience on board than the average newcomer Company chairman is ex Lotus and Ashton Tate while president David Patrick is ex-Ashton Tate and development head C Wayne Ratliff wrote dBase II and dBase III

In addition to *Ability* Migent will shortly be launching *Enrich* a database management system for £139 95 and will be bringing other items from its US range into the UK next year The most interesting of these isn t software at all

Hamilton free training

the company produces a pocket modem that is five inches long and supports baud rates from 300 up to 1200

The device costs $150 in the US and is liable to be around the £100 mark here For this you get a Hayes compatible box that is completely software controlled – it simply has an RS232 port at one end and two BT sockets at the other and is powered by a single nine volt battery The device has yet to receive BABT approval but is expected to go on the market here sometime next year

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SIGNATURE ________

NAME *(Block Capitals)* ________

ADDRESS ________

________ Postcode ________

Overseas orders and trade enquiries welcome Telex 946240 Ref 190-12450

Umbrella body formed

A NEW microcomputer industry trade association, the British Micro Federation was set up last week

The BMF aims to fill and expand the roles played by the now defunct Guild of Software Houses and will include hardware manufacturers software companies, wholesalers duplicators and the computer press in its membership

Around 75 companies were represented at the inaugural meeting held in North London and five areas headlined initially for the federation s attention

It was generally agreed that relations with national newspapers television and other media were poor and that a less gloomy picture of the microcomputer industry could be presented Most speakers concurred that thorough and accurate market research on the size of the industry and statistics on hardware and software usage was needed Thirdly a suggestion for the BMF to draw up a code of practice for members — pre-announcement of software releases was included here

The need to act strongly against software piracy in conjunction with the Federation Against Software Theft was also noted Finally the use of the federation as a forum for discussion and co-operation between companies went on the list

New printer from Brother

BROTHER is to launch a souped up addition to its range of printers at the *Which Computer?* Show in January The Brother 1709 will sell for around £595 has 136 columns and prints at 240 cps draft and 60 cps NLQ (near letter quality)

The 1709 has a 24K buffer and its features including the interface selector line spacing and baud rates are all selected from the front panel rather than by dip switches

Details from Brother Peripherals Shepley Street, Guide Bridge Audenshaw Manchester M34 5JD Tel 061-330 6531

Three from First

FIRST Software is to launch three new PC packages this month — *Decision Director Ability* and *Printility* *Ability* is an integrated package from Migent (see page 6) retailing around the £70 mark while *Decision Director* is a lower cost alternative (£39 95) consisting of word processor spreadsheet and window manager

Printility is a £49 95 print utility designed to work with any word processor and to make it easier to control the printer s functions First suggests it could be particularly useful with laser printers

Details from First Software Unit 20b Horseshoe Road, Horseshoe Park Pangbourne Berks RG8 7SW Tel 07357 5244

Footnotes

LEVEL 9 has signed a contract with Delta 4 to produce a joint project spoof adventure for publication next Easter Both parties are keeping quiet about the subject matter but here we see Mike Austin (9) showing Fergus McNeill (4) a bug he s found in the program

Commodore is meanwhile keen on convincing us that it knows just what we d all like in our stockings this Christmas The company s stand at next month s Commodore show will be bristling with innovative gift ideas including apparently some of the results currently being derived from the Amiga in use at the Heslerton Yorkshire Archaeological Project the largest rural excavation in the country Just what we d always wanted

CSD on the other hand is extolling the virtues of its Sparklers range of budget games Sparklers are too good to be budget trumpets the release As we recall that s what CSD thought when it released them at full price some considerable time ago

Still if you can change your mind once



Austin and McNeill

Diary Dates

NOVEMBER

7–9 November
Electron and BBC Micro User Show
New Horticultural Hall Greycoat Street London SW1
Details Hardware, software and peripherals for the Electron BBC micro and Master series
Prices £3 adults £2 children £1 discount for advance booking
Organiser Database Exhibitions 061-456 8835

8 November
UKEUG National Einstein Show
National Motor Cycle Museum Birmingham
Details Einstein software and hardware
Price Free
Organiser UKEUG 07982 2389

15 November
Wales and West Computer Show
Central Hotel Cardiff
Details All types of home computer and support
Price £1 adult 50p children
Organiser Preston Exhibitions 0658 880965

21–23 November
The Commodore Computer Show
Novotel Hammersmith London W6
Details Hardware software and peripherals for the Commodore range of computers
Price £3 adults £2 children £1 discount for advance booking
Organiser Database Exhibitions 061-456 8835

22 November
6809 Show
Old Halls of the Royal Horticultural Society
Details Show for the Dragon and Tandy Colour Computers
Price £2 50 adult £1 75 children reduction for advance purchase
Organiser Jenny Pope Microdeal 0726 68020

28–30 November
The Atari Christmas Show
New Horticultural Hall Greycoat Street Westminster London SW1
Details Hardware software and peripherals for the Atari range of computers
Price £3 adult, £2 children £1 discount for advance booking
Organiser Database Exhibitions 061 456 8835

Prices dates and venues of shows can vary and you are therefore strongly advised to check with the show organiser before attending *Popular Computing Weekly* cannot accept responsibility for any alterations to show arrangements made by the organiser

CSD joins the PC bandwagon

CSD (Creative Sparks Distribution) is joining in the PC budget software battle with a new label – Trust Software. The first three products to be launched are *Trust Writer* a *Wordstar* like word processor for £49.95, *Trust Speller* free with *Trust Writer* but otherwise £19.95 and *Trust Desktop* a Ram resident calculator/notepad/Ascii table/calendar combination for £24.95.

These will be followed by *Trust Calc* and *Trust Filer* spreadsheet and database software.

Details from CSD, Unit 811, Armstrong Mall, Southwood Summit Centre, Southwood, Farnborough, Hampshire GU14 0NP. Tel 0252 522200.

Front end system for Dos

MENUDOS is designed to provide an easy to use menu system and front end to MSDOS. It allows up to 24 options per screen and up to ten nested menus, and also features password protection. As a Dos front end it includes a batch file generator and editor, a lock-out facility for unwanted Dos commands, a Dos tutor and online help. It will also automatically search through a hard disc organising all files under its menu system. The program costs £53.

Details from Excel Computer Systems, Cables House, Hall Street, Chelmsford, Essex. Tel 0245 351608.

Writes issue from HiSoft

HISOFT has launched an enhanced version of *Write Hand Man*, a productivity tool similar in concept to Borland's *Sidekick*, to run on Amstrad's CPC6128. It already runs on all the Amstrad CP/M machines, but the new version has been enhanced to take advantage of the 6128's graphics and keyboard layout. The program is intended to run alongside standard applications software and includes a calculator, notebook, phone book, appointments diary, calender, screen editor and key macro facility.

The screen editor allows you to cut text from a file and paste it into your current document, while the key macro facility lets you reproduce sequences of keystrokes at any point in a given program. *Write Hand-Man* costs £29.95.

Details from HiSoft, The Old School, Greenfield, Bedford MK45 5DE. Tel 0525 718181.

Tatung offers Einstein bundle

TATUNG is now offering the earlier version of its Einstein bundled with a 14 inch colour monitor for £349. The machine has 80K Ram, 3 inch disc drive, Centronics, RS232 and joystick ports built in. Unlike the new 256K it won't directly run CP/M programs but expansion facilities are available along with various emulators.

Details from Tatung, Stafford Park 10, Telford, Shropshire TF3 3AB (0952 813111).


CAPTURED
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Spectrum & Amstrad versions coming soon!

More to being a woman than cooking

Your Ziggurat in *Popular* October 23 has prompted me to write as it cries out for further discussion (albeit from a male).

Granted that the computer industry seems geared to male tastes but surely there is room for female participation (witness the ladies of St Brides). Market research doesn't seem to be this industry's strong point especially when yet another *JSW* arcade game or Tolkienesque adventure will bring the money rolling in.

Your article goes on to make various equally valid points but doesn't offer a possible solution to the problem.

I don't have a cut and dried answer but I have another question what kind of software would most women like to see? On the face of it there doesn't seem to be very much in women's magazines that would be better served by a computer interpretation.

Cooking or knitting programs (though certainly possible) are as ludicrous as they are offensive. There must be more to being female (I hope) than that. I have a few suggestions:

a) Tips on the use of cosmetics using graphics and a database

b) Diets and calorie calculating tailored to the individual

c) Romantic adventures involving real people for a change

d) Educational software with a shift towards the mother rather than the father

To men this may sound like a recipe for boredom — do women feel the same way? I think it's time women made their feelings known.

Nick Cheesman
Farnham
Surrey

The Editor replies
While we take your point about no solution being offered in the Ziggurat it has to be said that neither of ***Popular's*** **two women staff were wildly wildly enthusiastic about your suggestions.**

I dread to think what a bunch of low res ***pixels*** **could do on a cosmetics program. Diet programs have been around for some time now and can obviously be quite useful (if you feel like loading up the computer every time you eat a Mars Bar), but I'm not clear on why you assume only women need to diet. Adventures involving 'people' rather than trolls is a plea we've covered in the Ziggurat column only recently. The idea about making them 'romantic' incidentally, went down like a lead balloon.**

The point in the October 23 Ziggurat was about mainstream games catering for male tastes, portraying male heroes, and man as hero/only person who can defeat the Mighty Tharg etc. Somehow I don't think we'll ever see Judy Simpson's Heptathlon, Fatima Whitbread Throws the Javelin or Navratilova's Wimbledon in the shops although these three are just as marketable as their male counterparts.

Plus look at all the games which involve the player as a Harrison Ford style hero off to rescue the latest 'helpless princess'. Let's face it, if you're an unarmed ***man*** **stuck in a** ***Karateka*** **type scenario, with dungeons locked doors and henchmen guarding over you, you're going to need some outside help.**

Fun and education

Although delighted to read your article on the Commodore 64C Connoisseur's Collection (*Popular* October 16) I fear that Andrew Mayfair may not have seen the handout from ourselves submitted with the machine for review.

He would then have realised that this collection represents a deliberate departure from the previous games/joystick compendia in that its appeal lies in providing whole family entertainment over the Christmas period and the basis for continued fun and educational value afterwards.

I appreciate that time may have disallowed him a foray into the Leisure Genius games but *Monopoly* and *Scrabble* in particular are not only faithfully computerised transfers of the original board games but I believe are better in many respects than the originals. Computerised bank balances and property records score heavily in favour of this version of *Monopoly* and the educational value of *Scrabble* is legion.

On the subject of value for money the cost of the mouse and cheese graphics package plus a 64C at a total recommended retail price of around £250 equates with the complete Collection's price so the Datasette five board games and Pitman typing tutor are effectively free of charge. So taking Andrew's recommendation to its logical conclusion — buy a Connoisseur's Collection and you have the basis of a sound investment.

Lastly he suggests that a return to the stalwart 64 will be Commodore's salvation. After four years and world

continued page 12 ▶

Puzzle

Puzzle No 232
I am thinking of a four digit number with all digits different said Arnold. And I want you to guess what it is.

6015 I replied hazarding a guess.

Sorry nowhere near! remarked Arnold. Your number only contains one of the digits in my number — but it is in the correct position. Have another guess!

I did so and Arnold replied. Very good! This time you have got all the digits present though not in the right order. In fact you are just 3456 too high!

Of course I now knew what number he was thinking of — but can you work it out?

Solution to Puzzle No 227
Answer Apart from 1634 (given in the question) there are two other four digit numbers with this property:

$8208 = 8^4 + 2^4 + 0^4 + 8^4$ and $9474 = 9^4 + 4^4 + 7^4 + 4^4$

Solution In the program all four-digit numbers are taken in turn and placed in the string variable *N$*. From this string each digit is taken in turn and the fourth power of the number is calculated. This is done by direct multiplication rather than by using the power command to ensure absolute accuracy. Any numbers in which the total of the powers of the digits equals the generating number are printed out.

Winner of Puzzle No 227
The winner this week is S Hazelgrave of Leeds West Yorkshire who will be receiving £10.

Rules
The closing date for Puzzle 232 is November 24. Answers on a postcard please.

```
10 FOR N=1000 TO 9999
20 N$=STR$(N)
30 T=0
40 FOR F=1 TO LEN(N$)
50 V=VAL(MID$(N$,F,1))
60 T=T+V*V*V*V
70 NEXT F
80 IF T=N THEN PRINT N
90 NEXT N
```

Letters

▶ continued from page 11

wide sales of six million units the 64 is still capturing 20% of the total annual UK computer marketplace. Certainly it represents a substantial revenue earner for Commodore alongside the Amiga. First year Amiga sales will pitch in at between 120 000 to 150 000 units worldwide. Pretty good compared to the Apple Mac's 140 000 first year figure for a machine that he claims is obviously not going to become the same groundbreaker.

Paul G Thompson
Harvard Marketing Services-
PR Consultants to
Commodore (UK)

Eeney meeney miney mo . . .

It was interesting to read the two letters published in your October 16 issue making comparison between the Atari ST and two other micros.

The 1040 ST is on my short list for purchase together with the expected new QL improvement, the QLT by Sandy and perhaps also the two new versions of the Commodore Amiga expected soon.

My needs are rather more like those of Howard Oakley (Letters October 16) than to the games player from Belgium.

However the letter's desire for good sound and excellent colour graphics could, I suspect, be alternatively satisfied by the new Tatung Einstein, if only it had 512K rather than 256K!

And the new Apple IIGS plus the rather expensive Amiga could excite him too.

But I am really after a cheap alternative for the Apple Macintosh Plus for desktop publishing and other business applications. So the monochrome 1040 ST plus Mirrorsoft's anticipated *Fleet Street Editor* could be the answer.

One final point – can anyone advise me about Ram discs?

Would the use of Ram disc software such as that marketed by Robtek for the ST enable one to manage without a second (hard or soft) disc drive? What is the normal advantage of having double rather than single disc drives?

P M Kingston
Bristol

Fantastick?

I read with interest the article on the Fantastick 2 joystick (*Popular Computing Weekly* October 2). I say article although it reads like an advertisement for an extremely ordinary overpriced joystick.

All right, so it has four suckers on the base, an automatic fire switch and an MSX switch. The Spectravideo Quickshot 2 offers the same at half the price.

I know it doesn't have an MSX switch, but that's because it doesn't need one. It just works anyway.

I use my Quickshots on my Commodore 64, Yamaha CX5M and Toshiba HX 10 without any problem.

I also use two Coleco joysticks (old games controllers) on all the above computers again with no problem.

They don't have automatic fire but they cost £1 each in a secondhand shop.

Noel Jealous
Cardiff

QL and ZX magazine

I would like to announce a magazine for Sinclair QL and ZX Spectrum owners. It is called QZ Net and is produced on Microdrive cartridge for both computers.

It has a strong bias towards programming (especially networking between the computers) but also includes reviews and other articles. QZ Net is available from the address below. Send a cheque (payable to P Lavender) or PO for a mere 50 pence plus a Microdrive cartridge stating which computer you would like the cartridge formatted on.

Phillip Lavender
27 Min Y Coed
Radyr
Cardiff
CF4 8AQ

Get writing – get Popular

Popular Computing Weekly always welcomes contributions from its readers for articles, features and program listings.

Whether you want to write articles, see your programming masterpieces in print, pass on some words of wisom or simply let off steam, there's space in the magazine for you.

Ideas for **feature articles** or completed articles should be sent to Christina Erskine. All aspects of home computing are considered but we cannot feasibly accept anything longer than 2 000 words, so brief is best. It's worth checking by phone or letter first that your article will be suitable. Payment is normally £35 per published page.

Technical editor Duncan Evans looks after the **program listings** and articles on programming. We rely on you for our Programming section so earn yourself a place in the *Popular* Hall of Fame (and £25 for each page we print) by having your program published. Even if it's not 100s of K of pure machine code but a short snappy routine there may well be a place for it in **Bytes and Pieces** (£10 a shot).

Articles on any aspect of programming are also welcome – with short listings included if relevant.

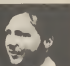
Got something you feel needs saying loud and clear? Your opinions on any aspect of the computer industry are welcomed, so why not write in to the **Ziggurat** section? No more than 600 words please. If published, we'll pay you £15.

So maybe it's not the money you're after, but you'd just like to have some say in the magazine.

For shorter comments, general observations or queries there is of course the **Letters page**, with the tempting offer of a year's supply of *Popular* binders for the Star Letter each week.

For more specific points, our team of columnists are always willing to answer questions, and keen to hear the latest information. Drop your lines to **Tony Bridge** (adventure hints always gratefully received), **Tony Kendle** (who wants as many Arcade pokes, maps, solutions etc as possible), **David Wallin** (communications), **Kenn Garroch** (programming problems), **Mark Jenkins** (music queries and sample tapes) and **Martin Bryant** (computer chess comments).

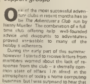
All letters should be addressed to *Popular Computing Weekly*, 12–13 Little Newport Street, London WC2H 7PP. If you mark your letters with the department you want, things get processed much more quickly.



Left: the adventurous Tony Bridge. Right: the active Tony Kendle

The return of the prodigal Adventurer's Club

Tony Bridge uncovers the mysteries of adventurers' support groups



One of the most successful adventure clubs in recent months has to be *The Adventurer's Club* run by Henry Mueller. The combination of a full time club offering help, well-founded advice and discounts to adventurers proved irresistible to many of the hobby's adherents.

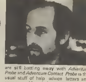
During the early part of this summer however, I started to receive letters from members worried about the lack of response from the club – a dismally common state of affairs I'm afraid in the atmosphere of today's home computing business, but I was surprised to hear that this particular operation seemed to have gone the way of other less thoughtfully run clubs.

Throughout the summer, all has been very quiet from ACL while I have opened more and more letters from disgruntled members. By now you will probably have read that the club is back in business, with Henry once more at the helm. He is now in full control of the club, rather than the managing position he held before and has obtained the services of Hugh Walker, Adventurer Supreme and Richard Bartles, the originator of MUD. Pete Austin of Level 9 will, I believe, continue as Honorary President.

If you are serious about your adventuring, then it's well worth joining ACL as it is one of the best. However, the whole episode must serve as a warning to everyone that things can go wrong – mere enthusiasm is not enough.

In the meantime, other clubs and magazines carry on. Nick Walkland's iconoclastic *Orcsbane* is my favourite. Sixty pages of adventure reviews, comic strips (still unfortunately uncredited), the usual verbose letters (I love 'em) and of course the requisite tips and help for just 70p is a great deal – and this is one of the few magazines that receives contributions from established writers in the field such as Bob Chappell and Mike Gerhard.

What is evident from reading *Orcsbane* is that adventuring is obviously fun to the producers of the (non-profit making) magazine. Write to Nick at 84 Kendal Road, Sheffield S6 4QH, or ring 0742 340433.



Pat Winstanley and Sandra Sharkey are still batting away with *Adventure Probe* and *Adventure Contact*. *Probe* is the usual stuff of help, advice, letters and reviews – although the magazine is well written it's a bit pricey at £1, although there is a very cosy atmosphere about the whole thing, and Pat and Sandra seem to encourage a lot of support from women adventurers as well as men.

Contact, on the other hand, is unique and a much better deal for just 50p. In this magazine, you'll find all sorts of advice on writing and marketing adventure programs, drawing on the personal experiences of authors who have already taken the plunge. The present issue has a detailed breakdown of the differences between *The Quill* and Incentive's GAC as well as articles about packaging, copyright matters, Do's and Don'ts of adventure writing and so on. Sandra (for *Probe*) can be found at 78 Merton road, Wigan WN3 6AT, and Pat (the *Contact* arm of the enterprise) can be contacted at 13 Hollington Way, Wigan WN3 6LS.

Next week, news of a new *Quill* and some new games coming out.

Adventure Helpline

Rebel Planet on Commodore 64 I cannot open the outer hatch of the space ship Caydia. Raymond Edgar, 91b Grosvenor Park, Camberwell, London SE5

Empire of Karn on Commodore 64 How do I get the diamond from the snake? What do I do about the crack in the pyramid? David Westerdale, 9 Upper Town Road, Greenford, Middlesex UB6 9JE

Kentilla on Spectrum I cannot find the gold key. I cannot get the idol with the sword to stop killing me. I cannot get the iron rod without dying. Luke Bruce, 65 Sorrel Gardens, South Shields, Tyne and Wear

Return to Ithaca on Spectrum How do I catch the cats? Where is the food I need to eat? Alan Hughes, 22 Tyddynto, Menai Bridge, Gwynedd

Souls of Darkness on Spectrum How do I get the axe? Also how do I get the crystal? Sean Haydon, 20 Prouds Lane, Bilston, West Midlands

Dungeon Adventure on BBC B How do I get the horn without the goat killing me, and how do I kill the black sphere? Mrs Barbara Gibb, 52 Burford Road, Liverpool L16 6A2

The Quest on Commodore 64. I can't get very far. Please any help – I'm going mad! David J Le Mesurier, Raptor Technician, Alfaisal Falcon Centre, Al-soodah Assir, Abha PO Box 513, Saudi Arabia

Souls of Darkon on Amstrad CPC 612S I've found the sword, axe, mushroom, anti-gravity belt, ring and coin but I cannot get past the monolith. Help! Mr D Adkin, 75 Crescent Road, New Barnet, Herts EN4 9RD

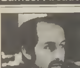
Adventure Helpline

Going bananas? If you are stuck in an Adventure with nowhere to turn, do not despair – help is at hand.

Fill in the coupon, explaining your problem, send it to us, and a fellow adventurer may be able to help.

Remember – the system only works if those adventurers who have solved the puzzles get in touch. Every week is Save An Adventurer Today (SAAT) week!

Adventure .... on (Micro) ....
Problem ....
Name ....
Address ....



Wear boots, give glue to aliens

Tony Kendle (finally) tells you exactly how to solve Knight Tyme

As promised last week we have the pokes here for *Sorcery* and *Bat man* for the Amstrad CPCs Many thanks to Hackers Unlimited

Before printing the complete solution of *Knight Tyme* from Adam Mayor which we ll do in two parts I thought it would be as well to give other people a chance by slipping in the following from one or two other letters

Stephen Johnston of South Ockenden sends the following tips The bag of runes will enable you to cast the consult oracle spell If you wear the magic talisman you can remove the barrier (however the game can be completed without this) Pay close heed to the information given at every planet you visit

Stephen writes that *Knight Tyme* is one of the best games I ve ever played as unlike many arcade adventures including *Spell bound* it holds the player s interest with problems that I had to keep returning to

Phil Waknell of Melton Mowbray had not finished the game when he wrote but here are his tips which we will follow up with Adam s contribution to the solution

Upon starting go left one room and take the instant film from Gordon and the McTablet food from Sarab At no time must you drop the letter Drop gadget X Un wear your cloak of invisibility Go left one room and get the camera Go right three rooms and command Derby IV to help and a blank ID card will drop onto the floor Pick this up

Next find the small robot S3E3 (make sure it is not the robot Klink) and give him the instant film and the camera and then command him to help You may have to wake him up first Then take from him the photograph and the pot of glue and select the wear command from the menu and select the now valid ID card You can then ask Sarab at the bridge for help and get the advert from Sharon You can fortify her if she needs it

Adam Mayor continues You can give Sharon the heart from Derby it isn t necessary but it makes her feel wanted You can now get the map and the tankard and you will find that you can go up in the world

Before you go to Monopole go to Starbase one where the transporter will be fixed and where you can refuel (When travelling between planets always use Time Distort 1 as it saves fuel, otherwise you may not get enough at the planet to refuel Some of the planets which give you fuel are Naff Eden Lynx Herschell and Trantore)

Also from Starbase get the boots in the last room In the 128K game the quark bomb is used to blow up planets but I don t think it does anything in the 48K game Get the bag of potatoes to give to Murphy on retreat Wear the boots Give the glue to an alien – I can t remember his name but he is green if you have chosen the attribute option at the beginning – just ask them all for help

I found the hardest part was getting the coordinates of USS Pisces – they made me give up the game until I got help – the answer is of course XO YO ZO

At Monopole wear the gas mask and cloak of invisibility In the life boat room you can get coordinates on a terminal In the second room there is a yellow triangle – get this and take the part of a sundial and talisman from Hooper

On the ship unwear the gas mask and the cloak and go to Retreat If you hang around Lynx and tune into their radio you will find Murphy s coordinates but just between you and me they are 8X 4Y 1Z

Once down there you may have to use the remove barrier spell to get to him Take the part of a sundial off him

When you meet up with the Tyme guardians take care because they are lying – go over to Trantors to find out why Alternatively just add one to the coordinates that they give you Before you beam down put the three sundial parts together and cast the lightning bolt Cast this again after they give you a machine Before you launch it remember what they said at Herschall

Here is a list of the routes to various planets

Eden leads to Deneb Gath Monopole Limbo Brightstar Polaris Starbase

Starbase leads to Eden Herschell Polaris Anda Gangrole

Herschell Monopole Porthos Reef Plop Plop Starbase

Monopole – Gath Porthos Eden Herschell

Gath – Deneb Monopole Limbo Eden

Deneb Gath Limbo Eden

Limbo Deneb Gath Eden Brightstar Polaris

Brightstar Limbo Eden Polaris Dragon Egg

Polaris Limbo Eden Brightstar Starbase Dragon Egg Anda

Dragon Egg Brightstar Polaris

Anda Polaris Starbase Gangrole

Gangrole – Starbase Anda Naff

Naff Retreat Gangrole

Retreat – Plop Plop Trantore Outpost Pinkot Naff

Plop Plop – Porthos Reef Lynx Herschell Trantore Retreat

Porthos Monopole Reef Herschell Plop Plop

Reef Porthos Lynx Herschell Plop Plop Trantore

Lynx Reef Nirvana Plop Plop Trantore Outpost

Nirvana – Lynx Trantore Outpost Bingo

Trantore Reef Lynx Nirvana Plop Plop Outpost, Retreat Pinkot

Outpost – Lynx Nirvana Trantore Bingo Retreat Pinkot

Bingo – Nirvana Outpost Pinkot

Pinkot Trantore Outpost Bingo Retreat Menopause

Menopause Pinkot

Next week we ll pass on some tips for *Herbert s Dummy Run* and a map for *Strike Force Cobra*

Star Trek!

In the year of the twentieth anniversary of the world's best-loved TV series, it's appropriate that the event be marked by what looks like being a classic computer game, *writes Chris Jenkins*, and that's what *Star Trek* is about



Star Trek is known throughout the world and re-runs of the 80 odd TV episodes are still being shown together with the three films (and another in production). The *Star Trek* game from the Beyond label is near completion and looks like a stunning production effort which will capture the imagination of thousands of Trekkies.

The Atari ST version will be closely followed by CBM 64, Amstrad and Spectrum games. In each the format will be similar but it's the ST version which will probably have the most impact with its incredibly detailed graphics and enormous playing area.

The actual title of the game – *Star Trek The Rebel Universe* – reflects the format of the adventure. It takes place in an enclosed globe where units of Star Fleet have been going rogue and throwing in their lot with the despicable Klingons. Your task is to patrol the globe hunting out the rogues and bringing them back into the fold – or eliminating them. The main display shows all the main members of the cast on the bridge, the TV version incidentally, not the movie version. Using the mouse you move the Star Fleet insignia to the character you choose and click to bring up the command screen.

The individual portraits of the main characters – Kirk, Spock, Scott and so on – are wonderfully drawn by artist Steve Cain and could almost be photographs. As each character's command screen fills the main area the bridge display is relegated to the sidelines ready to be called again when you want to access a new character.

Each character controls a different aspect of the ship's operation: Sulu navigation, Chekov weapons, McCoy medical and so on. It's up to you to select phasers, photon torpedoes, warp drive and all the *Star Trek* paraphernalia we have come to know and love.

Your first task obviously is to select a star system and warp to it. You use Sulu to set your course on an incredibly animated 3-D star globe then warp to the star system and scan for inhabitable planets. Putting together a team supplied with appropriate equipment from the stores is the next task, then select the Transport option to beam down to the planet.

Once landed, your team must negotiate alien complexes, solving the puzzles of locked doors and intractable aliens using their individual skills and the equipment available. Should any character be injured by dangerous artifacts or alien action, it's back to the ship and straight to sick bay for McCoy to work his magic.



The action is illustrated by gorgeously detailed graphics of the *Enterprise* in orbit and any alien ships you might encounter. Apart from the familiar Klingon and Romulan battle cruisers, these will include fast moving hunter-killers which grow more vicious as the game progresses.

The battle scenes take place on two screens: a medium range scanner which revolves to show the location of incoming hostiles, and a short range display in which you target wire-frame graphics and launch your photon torpedoes. With luck and skill you should see the alien cruisers disintegrate; if so, and you haven't sustained too much battle damage, it's on to the next star system in search of the next artifact or item of data you need to complete your quest.

The finished game will include communications routines for Uhura to perform sampled speech from the TV series, and authentic sound effects. With 256 sub plots to complete, and a number of different win scenarios (plus any number of losing ones) it looks as if *Star Trek: The Rebel Universe* is going to provide a feast of entertainment for games players of every type.



More bluster and fluster

If you're tired of Spitfires, F15s and the like, this is the big one. US Gold's *Dam Busters* puts you at the controls of a Lancaster bomber and pits you against flak, searchlights and of course the dams in an effort to do severe damage to Germany's war effort.

Unusually for a flight simulator you play six characters in all – navigator, flight engineer, pilot, bomb aimer and front and tail gunners. You switch between these with the aid of the function keys, and the nearer you get to your target the more frenetic the action gets.

The game can be started at one of three points: dam approach, in mid Channel or at your base airfield, with the difficulty level being varied simply by the distance to the target. Starting from base you switch to the navigator to set the course, then to the engineer to fire up the engines, then to the pilot to take off.

Once you're airborne you adjust the balance of the engines and toggle between gunners and pilots, with the odd dose of flight engineer to adjust speed or put out engine fires.

The gunnery section pretty well knocks any ideas you might have had about simulations on the head. You spend the entire mission blazing away at flak, searchlights and enemy fighters, and while it's entertaining from an arcade point of view you generally find you've knocked out more than a self-respecting Reich could reasonably sustain. I was also a little perplexed to discover that you met as much opposition over Wales as over the Ruhr.

Once you abandon the Welsh Water Authority and get to the real target you need to line up the aircraft at the right height and speed, then switch to the bomb aimer, who fine tunes the height and drops the bomb. In my experience you then get a pretty picture of your bomb bouncing across the lake – and missing.

As a game it's diverting enough, but I feel it could do with a little extra something to make it great entertainment. And on that subject, I notice that the wrapping says 'Lancaster model offer inside'. I've never had an offer from a Lancaster model, but as it hadn't been included I remain disappointed.

Popular Appeal ♦ ♦

John Lettice

Program *Dam Busters* **Micro** IBM PC and compatibles **Price** £19.99 **Supplier** US Gold, Unit 10, Parkway Industrial Centre, Birmingham B7 4LY

How to win an Academy Award

Pete Cooke's *Tau Ceti* was acclaimed as one of last year's best games, with original moonscape style graphics and sophisticated controlling of your craft through cities of outer space.

> *"A really nice touch here is the option to design your own skimmer"*

Well, every good game deserves a sequel, and Cooke has now come up with *Academy – Tau Ceti II*.

Academy has you as a student pilot at the Galcorp Academy for Advanced Skimmer Pilots, taking on 20 missions in order to graduate from the college. The missions are divided into five levels of four each, and to qualify to move up a level you must score over 90% on your present stage.

Menus are used to take you through the preliminary stages of selecting a mission to try out and a skimmer to go with it.

A really nice touch here is the option to design your own skimmer rather than settling for GCS Lenin, Lincoln and Wilson, already provided. You can put all the instruments and controls exactly where you find them most handy, and choose your own equipment – within a budget.

Having done that, you can set off on the Level 1 missions, enticingly called If it Moves, Red Dawn, Meltdown and Softly Softly. A separate screen gives some rather enigmatic details about what these entail.

Having chosen your mission, equipped your skimmer and launched yourself on to an unsuspecting solar system, you find yourself in a very *Tau Ceti*-esque scenario of strange shaped objects looming up from the distance, smooth swinging movement from right to left, and plenty to shoot at.

The instructions with the game are long and fairly daunting – rest assured that the game is rather more straightforward to play.

If you liked the graphic style and gameplay of *Tau Ceti*, then *Academy* isn't going to hold any disappointments.

Popular Appeal ♦ ♦ ♦ ♦

Christina Erskine

Program *Academy* **Micro** Spectrum **Price** £9.95 **Supplier** CRL, 9 Kings Yard, Carpenters Road, Stratford, London E15.

The tassiest game in the world

Forget about street credibility. Elimination hip and cool from your vocabulary. There's a new quality to be had.

Tass is what it is and *Tonetown* is where it's at. And you can get it in the latest adventure from Activision *Tass Times in Tonetown*.

In Tonetown however being tass is not merely desirable it's essential for your survival. Because if you're not tass you're a tourist and local mean machine Franklin Snarl has a way with tourists.

He feeds them to his Crocagators.

If this is beginning to confuse you let's backtrack a little. You start at the deserted home of your friend Gramps – deserted that is except for his faithful dog Spot.

Your first task is to find the transdimensional doorway to Tonetown where Gramps has disappeared.

In Tonetown you can't do a thing until you get tass. That means buying new clothes, a new hairstyle and getting a job. Check out the copy of the Tonetown Times that came free with the game for some ideas.

Once you stop looking like a tourist you'll find the locals helpful – hang out at Fast Freddie's, check out the Daglets concert in the park. But watch your back.

Your sidekick for the duration is good ol' Spot. But in Tonetown Spot is better known as Ennio, ace reporter for the Times, six times winner of the Inter Moonal Ultra Journalism award, and known locally as The Legend.

As you've probably gathered *Tass Times* is an adventure like no other. It's illustrated and animated with an excellent musical soundtrack too (wander into the Wetlands and you'll get a close encounter with a Crocagator to the accompaniment of mean and moody Jaws-like music).

There are traditional adventure puzzles to be solved – a deep dark well where you'll need a light for example – but Tass Times is original to the nth degree.

The parser is not up to Infocom standards, the graphics are no match for *The Pawn* but *Tass Times* can hold its head up in any company. Don't be a tourist – get with what's tass.

Popular Appeal ◆◆◆◆

Peter Worlock

Program *Tass Times In Tonetown* **Micro** Commodore 64/128 and Atari ST, disc only **Price** C64 £19.99 ST £24.99 **Supplier** Activision, 23 Pond Street NW3

A different game

Why is it that new snooker or pool games always have The Entertainer as their theme tune? After loading up Electronic Pool from microdeal guess what was the first thing to issue forth from the monitor's speaker?

If you were expecting a game of eight ball Pool then you would be in for a disappointment because EP only has seven (including the white). Initially I groaned at this but then I realised just how boring that would be as a game and how much better *Electronic Pool* is because it's different.

What you have here are the six balls and the six pockets numbered from one to six. The game is all about points. So if you sink the six ball in the pocket labelled four then you score 6 x 4 x 10 points. Just to keep things interesting once a ball is potted the numbers on the holes move round and if you're playing against someone over a set number of frames (one to eight) then all the points scored are multiplied by the frame number including those four fouls.

In the one player game you are given three 'lives' (so to speak) to score as many points as possible thus registering in the Hall of Fame (not permanently however – boo hiss). Committing a foul or failing to pot a ball on three consecutive shots costs you a life.

The algorithms concerning ball movement and reaction are generally very good with most shots going where you aimed.

Disappointingly Electronic Pool utilises none of the ST's advanced abilities but is still a fairly entertaining game.

Popular Appeal ◆◆◆

Duncan Evans

Program *Electronic Pool* **Micro** Atari ST **Price** £19.95 **Supplier** Microdeal, PO Box 68, St Austell, Cornwall PL25 4YB

A weak and pathetic effort

Epyx obviously have a thing about flogging a dead horse. Witness *World Games* – the follow up to *Summer Games*, *Winter Games* and *Summer Games 2*.

This time you travel in jumbo around the world to various locations which bear little resemblance to reality to compete in weightlifting, barrel jumping, cliff diving, slalom skiing, log rolling, bull riding, caber toss and sumo wrestling (of all things).

Weightlifting in deepest Russia is a fairly bland affair, no crowds outside the hotel at midnight keeping you awake and no KGB agents giving you strange parcels at the airport.

Bull riding, caber tossing and log rolling are basically garbage, the graphics being amazingly uninteresting.

Cliff diving in Acapulco is good fun, the impact of the diver against the rocks when he mistimes his dive and the accompanying thwak is almost painful to watch.

Slalom skiing, sumo wrestling and barrel are all done competently but this is hardly good enough. Indeed the entire package has the feel of something knocked out in a hurry before people get completely pissed off with sports simulation.

Popular Appeal ◆

Duncan Evans

Program *World Games* **Price** £9.95 **Micro** C64 **Supplier** US Gold, Unit 10, The Parkway Industrial Estate Centre, Heneage Street, Birmingham B7 4LY

Cashing in on the public domain

If you own an IBM-PC compatible, Marcus Rowland can tell you where to get some reasonably good software for cheap

It's now possible to buy a complete IBM-PC compatible computer at less than last year's price for an eight-bit home system with monitor and drives. With the arrival of Amstrad on this particular scene, interest among individual users, as well as small business users, is soaring.

"Some of these programs appeal to special interests – a few are original or provide cheap alternatives to commercial products"

A problem which will probably continue for some time is the fact that PC software prices range from expensive to exorbitant. While manufacturers have begun to produce more reasonably priced packages, under pressure from Alan Sugar and Amsoft's own pricing policy, they are still far more expensive than their eight-bit home equivalents.

One alternative is the cheap and free software distributed by special interest group (Sig) libraries. All of the software in these libraries is either public domain or freeware. Public domain software is available without any obligation; the user is free to copy it, modify it and pass on copies at will. Freeware is also readily available, but there are usually a few conditions to its use.

In general, the author hopes to be paid for programs if they are useful, and asks users to pass on all of the original unmodified program (including subsidiary files and documentation, if it is on the disc) if copies are given away.

In return, registration of a program is usually rewarded with the latest update of the program, often including source code or enhanced features.

Some of these programs are too bad for commercial distribution; others appeal to special interests. A few are original or provide cheap alternatives to commercial products. Nearly all are American. Usually there are no guarantees of reliability or compatibility with any given hardware or operating system configuration.

The most important open-access PC libraries are probably the American PC Sig and PC Blue collections, and Britain's PCBBUK (PC Bulletin Board UK) library. Several British suppliers have access to these collections. Usually it costs £1.50 or £2.00 to have the contents of one library volume (360K) copied to a formatted disc, plus postage, though this can vary between different suppliers. All now charge a membership fee.

The IBM-PC compatible

Many of the programs in these libraries are bug-ridden or otherwise useless; the selection below covers software I've liked enough to keep. It also reflects my own interests: since I don't use financial programs or spreadsheets they aren't covered, but I've probably given word processors and ancillary programs a little more attention than they deserve.

Most of the volumes mentioned include additional programs of varying quality. All of these programs include some documentation, though the quality is very variable.

Programs were tested on a 640K IBM PC with a colour card and RGB monitor using PC DOS 2.1, and were also tested for compatibility with *Sidekick*, a popular memory resident program that is a good test of software bugs. The first two have also been tested (fairly briefly) on the new Amstrad PC; however, in the crush of the *PCW* show it wasn't possible to test all programs comprehensively. They were not, for instance, tested with Gem loaded. All are claimed to run in 256K or less.

Probably the most famous Freeware program is *PC Write*, a word processor by Bob Wallace (Quicksoft). The current version (2·6) has a maximum file size of 62K (approximately 45 double-spaced pages) and is fast and moderately user friendly.

Unfortunately this program tends to suffer compatibility problems with each new release; there always seem to be differences between control keys, embedded control codes and the like.

Features of this release include split-screen and multiple document editing, DOS commands from the program, mail merge, document merge (to allow final documents much larger than 62K), printer control codes, and an extremely wide range of configuration options covering every aspect of program operation, display and screen control.

The main limitation is that this isn't a "what you see is what you get" program: text is only formatted when it's printed, and page breaks aren't shown on-screen. There is a 41 page manual supplied as a text file on the disc; this isn't the complete manual, which is supplied on payment of a $75 (around £55) registration fee, along with the latest version of the program and its source code.

If someone registers a copy of your registered disc you'll be sent $25 (about £18); give away enough copies and you make a profit! Versions up to 2·55 were supplied with full 200-page documentation as a compressed text file, and are still available. *PC Write Version 2·55* is on PCBBUK volume 63, version 2·6 on PCBBUK volume 201. Earlier versions can be found on other discs. All versions support a wide range of monitors and printers.

While *PC Write* covers most aspects of word processing, neither gives an on-screen display of fonts, except by showing a marker for each control code. *Chiwriter* by Horstmann Software Design remedies this omission, but is less than ideal in other respects.

It shows 10 fonts on screen (on the

continued on page 20 ▶

▶ continued from page 19

PC in mono graphics mode) These fonts include normal text bold italic old English Greek and a range of other scientific and mathematical symbols

It's advertised as a scientific word processor and can assemble complicated multi level equations The procedure isn't particularly simple but the results are extremely good ranging from draft quality to a high resolution print mode that takes several minutes per page but produces extremely impressive text.

The main snag of this program is the author's method of persuading users to buy the program it displays a 30 second advertisement as it loads and on every five thousandth key press Users who register the program get a version without the advertisement

There also seems to be a bug in the printer configuration program supplied when run it scrambles the configuration data on the disc making the program abort as it loads Luckily the default setting is for most Epson dot matrix printers and should be suitable for a wide range of machines

Finally the text display isn't particularly clear on a standard IBM graphics monitor and other screens with the same resolution (probably including Amstrad)

Full registration of *Chiwriter* costs $69 95 (about £50) with further payments needed for Hercules and EGA graphics cards popular alternatives to the standard IBM colour graphics display Registered users get additional printer support the latest version of the program an editor for additional fonts and a full manual As it stands this program may not be a good alternative to *Microsoft Word Junior* unless you particularly need the more specialised graphics it provides *Chiwriter* is on PC Blue volume 173

PC Deskmate is a memory-resident program designed as a replacement for *Sidekick* offering *Sidekick's* features of notepad text editor modem dialler calendar and diary plus additional features such as an alarm clock disc utilities and printer control Not surprisingly it isn't compatible with *Sidekick*

Another problem is that it doesn't save text files in Ascii format, which makes it difficult to use this program to extract text from one file and pass it to another (a common use for *Sidekick*) I wasn't able to test this program on an Amstrad and would advise users to be fairly cautious Registration is $25 (£18) *PC Deskmate* is on PC Sig volume 133

Three By Five (Softshell Corporation) is an unusual database package designed to search through documents for references and create a report or separate files based on the documents it checks It can cope with a wide range of files including Ascii *Wordstar* and the like It also has word processor facilities and can be used to edit documents as it searches them

One unfortunate aspect of this program might rule it out for some users it resets the printer as it loads and anyone who uses a print spooler or buffer may find that they can't use it during a long print run *Three By Five* is on PCBBUK volume 173 with documentation and sample files The author asks users to register their copies but doesn't seem to ask for any fee

Ultra Utilities by Freesoft is a collection of disc tools including a disc zapper a file recovery program, a specialised formatting routine, and an optimiser All seem to work well though they require some knowledge of the operating system and machine code for safe use Bearing this in mind it's always advisable to work on backup copies of discs various utilities allow safe copying of a corrupted disc before salvage is attempted Registration costs $40 (£28) with the benefits of telephone support (not particularly useful in Britain) and $15 refunds if copies of your disc are registered in turn This package can be found on PC Sig volume 245 along with a database by the same authors

Ladybug by David N Smith is a limited implementation of Logo incorporating graphics (including some extra commands) and sound but omitting list manipulation the ability to save screen images to disc and variable numbers of parameters to primitives The disc holds 54 pages of documentation and some prepared subroutines *Snowflake* for example draws a lovely fractal pattern My only criticism is that it runs fairly slowly I've seen implementations for other computers that worked at double or triple the speed and the turtle routines in *Turbo Pascal* are faster still Registration costs $35 (£25) no benefits are specified *Ladybug* is on PC Sig volume 94

Other languages available through user supported channels include several machine code assemblers Lisp (*Xlisp* on PCBBUK volume 70) Forth (*Fig-Forth* on PC-Blue volumes 54–5 *Laxton & Perry Forth* on PC Sig volumes 263–4) Prolog (PC Sig volume 417) Pascal (PC Sig volumes 424 510 and 540) and C (*Small C* PCBBUK volume 161)

Many of these implementations diverge from industry standards or are limited in other ways for example the two Pascal compilers are mutually incompatible with each other and with the most common compiler *Turbo Pascal* while the third Pascal program mentioned is an interpreter that's incompatible with anything other than a restricted subset of the language but allows on screen debugging and single step operation of programs

There is also a huge range of discs containing useful subroutines for various languages most are for *Turbo Pascal* followed by C and Basic with other Pascal variants trailing in fourth place

This survey has necessarily been extremely brief for example I've not mentioned any of the huge range of communications programs available in the public domain from simple modem packages to complete bulletin-board systems

More information on these and other programs can be obtained from two organisations

Public Domain Special Interest Group 138 Holtye Road East Grinstead Sussex RH19 3EA Tel 0342 313883 (also Fido bulletin board)

Compulink Users Group PO Box 283 Slough SL1 5JJ Tel 04867 6535 (also Fido bulletin board)

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JUKI 6100

A superb DAISYWHEEL printer this model provides the highest quality print that only a daisywheel can provide. Print speed is 20 cps and the daisywheel itself is of the common Triumph Adler type. Ribbons are of the cheap and easily obtainable IBM [illegible]

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A brand new very high specification dot matrix printer which will print in draft mode at 200 cps and NLQ at 40 cps. Additional font cartridges are available to vary the print style. Most functions can be accessed from the front panel as well as through codes. Another high spec feature is its 8K buffer. It is Epson compatible and has full graphics ability

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1756 PERSHORE ROAD,
COTTERIDGE, BIRMINGHAM
Tel: 021-458 4564

This Disciple is no Judas

One of the problems with the Spectrum is that in order to build up a sophisticated system you must add on many peripheral units all of which must plug in to the user port What s obviously needed is an interface which serves many functions and if possible offers some new facilities The Disciple seems to qualify on all counts

This innocent-seeming unit offers disc drive interfacing disc program transfer centronics printer interfacing networking and dual joystick ports and costs a lot less than buying all these separately (apart from the obvious increase in ease of use)

The Disciple (awful pun) is similar in appearance to the Sinclair Interface 1 and is in fact compatible with it It fits on to any Spectrum via its standard user port connector and is screwed into place tilting the Spectrum to a convenient typing angle

To the right of the unit is the disc drive connector to the rear are the networking sockets twin D-type joystick ports follow on user port and centronics printer port On the left are the two control buttons the inhibitor which disables the interface s operating system in the case of a clash with incompatible peripherals and the snapshot switch which can be used to produce screen dumps

The virtue of the Disciple is that it can be used with any standard disc drive, single or double density single or double sided 40 or 80 track 3 inch 3½ inch or 5¼ inch Likewise any Centronics printer will do This is because the operating system which is initially loaded from cassette can be tailored to whatever add-ons you have

The pre-production version of the operating system consists merely of a series of text screens asking you to enter codes to define the type of drive type of printer and various options for line spacing special printer functions, networking features and so on Once you have defined your system you can save the file to a formatted disc for future use

In operation the system file resides in the Disciple s Ram and so takes up no Spectrum memory space Unfortunately you must use the inhibit button to disable certain functions If you want to use a microdrive and Interface 1 while the Disciple is attached The Disciple disc operating system allows up to 800K to be stored on a double sided double density disc You can use any disc drive with a standard Shugart connector typically a BBC compatible unit

Up to two disc drives can be used connected using file names of up to ten characters to store several different types of file Basic data arrays character arrays, machine code screens microdrive format or snapshots The different types of file are identified with a code letter and a display of the file space used when you list them using the *Cat* command

The syntax used for the disc drives can be the same as that for microdrives to make life easier however there is a simpler syntax available which addresses the drives using the prefix D1 (or D2) Files can be renamed copied erased, autoloaded and so on The computer can be reset without disrupting the DOS and you can also use the Disciple s snapshot button to dump the entire 48K (not 128K) program to a disc This is of obvious use in creating a disc software library and in saving programs at crucial points

Using a printer is pretty straightforward having defined your operating system in the question-and-answer session you just use *LPrint* and *LList* Two positioning commands *Tab* and *At* are also provided It s also possible to produce screen dumps from any program using the snapshot button and the caps shift key

Networking allows up to 63 Spectrums to be linked with Disciples to be linked together in a system sharing master disc drives and printers The applications especially for education are obvious again the file serving system is defined in an opening question-and-answer session

Finally the Disciple s two joystick ports can be used either as Kempston standard (single stick) or Sinclair (double stick) With a claimed data transfer rate of 125K/second using a single density drive and access time of one second the Disciple s most obvious virtue is that it gives Spectrum owners easy access to disc storage The snapshot facility printer interface and joystick ports and networking are big bonuses

My only reservations about what must be seen as a very desirable purchase are that the pre-production manual and operating system software are pretty primitive – a huge amount of prettifying would be useful – and that both of the review model s switches disintegrated A dab of superglue needed there Rockfort

That apart I can t think of many Spectrum owners who would not leap at the chance to get their hands on the Disciple

Chris Jenkins

Product *Disciple interface* **Micro** Any Spectrum **Price** £94 75 **Supplier** Rockfort 81 Church Road London NW4 4DP Tel 01 203 0191

The Elite joystick

From traditional sticks . . .

Euromax s latest entries in the joystick stakes cover the range from traditional to totally spaced out Both offer something for first-time buyers and experienced games players looking for that little bit extra performance and since the sticks feature the standard D-connector they can be used with Commodore Atari and Amstrad micros plus Spectrums with a suitable interface

The more conventional stick is the Elite which has an unusual body shell shape but is in fact quite straightforward and easy to use The Elite is made in high impact ABS plastic with a steel shaft

The Elite also features micro switches making for precise 8 directional control The unusual bulbous shape is very comfortable for their left or right hands and the two fire buttons – a large one for single shot and a smaller one for autofire – have a positive action

Bound to arouse more controversy is the amazing Joyball Though it acts exactly the same as a joystick it looks more like the Chernobyl nuclear plant, with a large spherical controller a flat dog-leg shaped base and five controls However as the Japenglish instructions explain this is New weapon beyond joystick! High technological forum based

The paperless office must wait

There is one simple technological leap that must be accomplished if we're to achieve the paperless office, factory and/or abattoir. Now you may think that dispensing with paper is a matter of getting everybody to communicate with the aid of computers and modems – once that's happened we can just dump all the paper, check?

Well, that's not strictly true, firstly because tests in the US have already shown that the current generation of keyboards isn't absorbent enough for the paperless levatory to become a reality, and secondly because no matter how many of us have the necessary kit there will always be some nerd who insists on bashing out text with the aid of Basildon Bond and John Bull printing set. Now if you've got everything geared to handling digital information on disc and in Ram, the arrival of paper based analogue information is decidedly unwelcome.

The point is that the paperless office needs to have an interface to paper if it's to take off – basically, computers need to learn to read.

Now they can do this, but it's a complex and expensive process. Page scanners costing several thousand pounds will read in the patterns of letters, compare these to patterns stored in the computer's memory and assign an Ascii value to the letters, provided they're recognised. The expense lies in two areas. The method used to read the data on the page has to be highly accurate, and the software has to be flexible enough to recognise a letter in many different typefaces as being the same letter. You may be able to read in italics but getting a computer to do so can be tricky.

The Oberon *Omnireader* is a valiant – but it must be said failed – attempt to break through the optical character recognition barrier. It was first launched around two years ago at £400, which is still staggeringly cheap for this sort of device, but unfortunately the compromises inherent in cutting the price to this level stopped it from establishing itself. Oberon went bust, but the beast is now on the market again, and at £39.99 is going so well that the vendor has just phoned me up telling me the price has gone up to £49.99.

> *"The basic concept of the Omnireader ... consists of a flat surface with a ruler attached – place the text to be scanned in a window in the ruler, one line at a time and track the scanner along it"*

The basic concept of the *Omnireader* is good. It consists of a flat surface with a ruler attached. Place the text to be scanned in a narrow window in the ruler one line at a time and track the scanner along it while holding down the scan button. The *Omnireader* acts as a modem with baud rates from 300 to 9600, so anything it sends should be receivable with the relevant comms software.

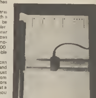
Now the problems. You can only scan one line at a time, and type size and spacing is quite critical, so some text just won't scan. If the device were a lot more expensive it would use stepper motors to take the scanner across the paper at a constant speed, but as it doesn't you need to have a steady hand.

The net result is that you'll only get a completely accurate representation of a line under optimum conditions, and quite often you'll find you have to try a line two or three times before you get it right. You can get the text across into digital form, but you can find that it's taking you as long – or longer – than it would just to retype it. And once you have got it in you'll probably have to run it through a spelling checker and debug it.

So is it any use? The obvious answer is "did Oberon go bankrupt?" but at £40 – or £50 – it starts to look like an interesting deal, if not a good one. If you seriously think you can do a useful file transfer job on it go and hold your head in a bucket of ice cold water until you feel better, but if you're interested in the technology and want to experiment it really is excellent value.

John Lettice

Product *Oberon Omnireader* **Supplier** Metroheath, 287–289 Whitechapel Road, London E1.



to totally spaced out

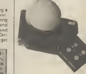
upon Game Engineering both the design and colour appeal ... this forum can respond to your adventural spirit! Whatever that means. It's right.

The Joyball has four fire buttons, two of which are normal and two of which are autofire. The autofire rate can be switched from 7.5 to 15 shots per second using a slider switch between the ball and the fire buttons.

The increased comfort of the large ball as opposed to a slim handle comes into its own because you need only hold the ball loosely; your hand does not become tired so quickly.

Operating the Joyball takes some getting used to, since it involves learning a whole new set of reactions. However, tried out on a whole range of fast moving arcade games, including *Undium* and *Sacred Armour of Antriad*, it proved increasingly effective with practice. Certainly one to to try out if you want to get one up on the neighbours.

Product *Elite/Joyball joysticks* **Micros** Commodore, Amstrad, Atari, and Spectrum with suitable interface **Price** £16.95, £24.95 **Supplier** Euromax, Pinfold Lane, Bridlington, North Humberside YO16 5XR, Tel. 0262 601006.



The Joyball – no jokes please

Card Index

Iain Tatch

When first run the program asks you if you want to use an existing file or create a new one. Enter either E or C as required. You will be prompted for a filename which can be up to eight characters long but must not include any symbols.

If you are creating a new file you will then be prompted for field lengths (up to 80 characters) and their titles (up to 25 characters). You now have the option of adding a password to your file if so desired.

As the listing is spread over two weeks the remaining instructions are given next week. If you would like a copy of the program send a formatted 3" disc and £2.50 to Iain Tatch, 4 Victoria Road, Chingford, London E4 6BZ.

```
10 REM * INITIALISE VARIABLES *
12 MEMORY ,I 800
15 bel$=CHR$(7)
40 esc$=CHR$(27)
50 inv$=esc$+"p"
60 niv$=esc$+"q"
70 bu$=esc$+"r"
80 eu$=esc$+"u"
90 on$=esc$+"e"
100 of$=esc$+"f"
110 DEF FNat$(x,y)=esc$+"Y"+CHR$(y+32)+CHR$(x+32)
120 cls$=esc$+"H"+esc$+"E"
125 DIM s$(10),t$(10),f$(10),flen(10):nof=0
130 REM * SET UP SCREEN *
140 PRINT esc$ "y",cls$,CHR$(134),
150 PRINT STRING$(86,138) CHR$(140)
160 PRINT CHR$(133) " " inv$ " ",
170 PRINT "Amstrad PCW 8256/8512 Random Access Card Index Database (C) September 1986 I Tatch "
180 PRINT niv$ "   CHR$(133)
190 PRINT PRINT CHR$(13) ; STRING$(86,138)
200 PRINT CHR$(137)
210 PRINT esc$ "X$ (w"
220 REM * GET FILE NAME *
230 PRINT PRINT "Will you be using an existing file or creating a new one? (E/C) ";
240 f$="EeCc" GOSUB 10000 ft=i
250 PRINT inv$,
260 IF ft<3 THEN PRINT "OLD" ELSE PRINT "NEW",
270 PRINT " FILE" niv$
280 PRINT PRINT "Filename (up to 8 characters) :"
290 l=8 GOSUB 10100 f1$=s$
300 f1$=FIND$(f1$+".var") f2$=FIND$(f1$+".dta")
310 IF ft>2 THEN GOTO 500
320 IF f1$<>"" AND f2$<>"" THEN GOTO 350
330 PRINT PRINT PRINT bel$ "Variable and/or data file not found  (C)hange discs (R)e-enter filename or (N)ew file "
335 f$="CcRrNn" GOSUB 10000 IF i>4 THEN PRINT GOTO 500
340 IF i>2 THEN PRINT cls$ GOTO 280
345 PRINT "Change discs then press RETURN " f$=CHR$(13) GOSUB 10000 RESET GOTO 300
350 OPEN "i" 1 f1$+".var"
360 INPUT #1,pw IF pw=0 THEN GOTO 380
365 PRINT PRINT "File has a password  please enter "
370 pass$=INPUT$(pw) INPUT #1,pw$ PRINT
375 IF pw$<>pass$ THEN PRINT PRINT bel$, "Incorrect password    press RETURN " f$=CHR$(13) GOSUB 10000 RUN
380 INPUT #1,nof,nor
385 PRINT PRINT "File has  nof "fields Titles   "
390 PRINT FOR I=1 TO nof
400 INPUT #1 t$(I),flen(I)
410 PRINT "Field" I "-  Title  " t$(I) ", length",flen(I)
420 NEXT I
430 CLOSE 1
440 PRINT PRINT
450 PRINT "Press RETURN   " f$=CHR$(13) GOSUB 10000
452 totlen=0 FOR I=1 TO nof totlen=totlen+flen(I) NEXT I
455 OPEN "r" 1 f2$+".dta" totlen
460 FIELD 1,flen(1) AS f$(1) flen(2) AS f$(2) flen(3) AS f$(3),flen(4) AS f$(4) flen(5) AS f$(5) flen(6) AS f$(6) flen(7) AS f$(7),flen(8) AS f$(8) flen(9) AS f$(9) flen(10) AS f$(10)
470 GOTO 1000
500 REM * CREATE NEW FILE *
510 IF f1$="" AND f2$="" THEN GOTO 550
520 PRINT PRINT bel$ "A file already exists with this name "
530 PRINT "(C)hange discs  (O)ld file or (N)ew name"
535 f$="CcOoNn  GOSUB 10000
540 IF i 3 THEN PRINT "Change discs then press RETURN " f$=CHR$(13) GOSUB 10000 RESET GOTO 300
542 IF i 5 ft=1 GOTO 300
545 GOTO 280
550 PRINT PRINT "Creating file   " OPEN "o" 1 f1$  var"
560 PRINT PRINT "How many fields (1-10) ?"
570 f$="1234567890" GOSUB 10000 IF i=1 THEN i=10
580 PRINT i nof=i PRINT
590 FOR j=1 TO nof
600 PRINT "Field number";j "    Title ) "
610 l=25 GOSUB 10100 t$(j)=s$ PRINT
620 PRINT "                        Length ) ",
630 INPUT flen(j) IF flen(j)<1 OR flen(j)>80 OR flen(j)<>INT(flen(j)) THEN PRINT bel$ GOTO 620
640 NEXT j
650 PRINT PRINT "Assign a password to the file (Y/N) ",
660 f$="YyNn" GOSUB 10000 IF i>2 THEN GOTO 700
670 PRINT PRINT "Enter password (up to 8 characters) :"
680 l=8 GOSUB 10100 pw$=s$ pw=LEN(pw$)
700 IF pw THEN WRITE #1 pw pw$ ELSE WRITE #1 0
710 WRITE #1,nof 200
715 nor=200
720 FOR I=1 TO nof
730 WRITE #1 t$(I),flen(I)
740 NEXT I
750 CLOSE 1
770 totlen=0 FOR I=1 TO nof totlen=totlen+flen(I) NEXT I
777 OPEN "r" 1 f1$+".dta" totlen
780 FIELD 1 flen(1) AS f$(1) flen(2) AS f$(2) flen(3) AS f$(3) flen(4) AS f$(4) flen(5) AS f$(5) flen(6) AS f$(6),flen(7) AS f$(7) flen(8) AS f$(8) flen(9) AS f$(9) flen(10) AS f$(10)
790 FOR I=1 TO nof LSET f$(I)=" " NEXT I
792 PRINT PRINT PRINT "Creating file with 200 records (more may be added later) Please wait   "
800 FOR I=1 TO 200
810 PUT 1
820 PRINT I CHR$(13)
830 NEXT I
840 PRINT bel$
1000 REM * MAIN MENU *
1005 nor$=STR$(nor) nor$=RIGHT$(nor$ LEN(nor$)-1)
1010 PRINT cls$ PRINT PRINT
1020 PRINT "File  " f1$ PRINT
1030 PRINT "Number of records " nor
1040 PRINT PRINT
1050 PRINT bu$,"PLEASE CHOOSE " eu$
1060 PRINT
1070 PRINT "1     Enter/edit data"
1080 PRINT "2     Erase a record"
1090 PRINT "3     Copy record(s)"
1100 PRINT "4     Search file"
1110 PRINT "5     Print out file"
1120 PRINT "6     Increase number of records"
1125 PRINT "7     Display a record"
1130 PRINT "8     Finish editing"
```

```
1140 PRINT PRINT "What is you   hoice ?"
;
1150 f$="12345b7°" GOSUB 10000
1160 ON i GOTO 2000 3000 4000 5000 6000
7000 3000 8000
2000 REM * ENTER/EDIT *
2010 PRINT cls$ PRINT bu$ "ENTER OR EDIT
 DATA" eu$
2020 PRINT
2030 PRINT "Which record (1-",nor$
2040 INPUT") >",rec%
2050 IF rec%<1 OR rec%>nor THEN PRINT be
l$ GOTO 1000
2060 PRINT cls$ PRINT
2070 PRINT "File " f1$,"     Record " r
ec% CHR$(8) "/" nor$ PRINT
2075 GET 1 rec%
2080 FOR 1=1 TO nof
2090 PRINT t$(1)   /",f$(1) ">"
2100 NEXT 1
2110 PRINT PRINT "Enter data, or press R
ETURN to leave entact_"
2120 FOR j=1 TO nof
2130 PRINT FNat$(LEN(t$(j))+2 j+3);
2140 i-flen(j) GOSUB 10100
2150 IF s$<> "" THEN LSET f$(j)=s$
2160 PRINT CHR$(13) t$(j) " /" f$(j) ">"
2170 NEXT j
2180 PUT 1 rec%
2190 PRINT
2200 PRINT "(9 e nt          E d
it another recor
;
2210 f$="RrEeF!" GOSUB
2220 IF i<2 THEN GOTO 2
2230 IF i<5 THEN GOTO 2
2240 GOTO 1000
3000 REM * ERASE *
3010 PRINT cls$ PRINT bu$ "DELETE A RECO
RD  eu$
3020 PRINT PRINT "Erase which record (1-
" nor$
3030 INPUT ")  >",rec%
3040 IF rec%<1 OR rec%>nor THEN PRINT be
l$ GOTO 1000
3050 PRINT PRINT
3060 GET 1 rec%
3070 FOR 1=1 TO nof
3080 PRINT t$(1) " /" f$(1) ">"
3090 NEXT 1
3100 PRINT PRINT "Confirm deletion of re
cord" rec%,"(Y to delete  N to keep)"
3110 f$="YyNn" GOSUB 10000
3120 IF i>2 THEN PRINT PRINT "Record " :
nv$ "not" niv$," deleted " GOTO 3200
3130 FOR 1=1 TO nof
3140 LSET f$(1)=""
3150 NEXT 1
31      rec%
3170 PRINT "Record     nv$ "deleted " n v
$
3200 PRINT PRINT  "Press RETURN"
3210 f$=CHR$(13)
3220 GOSUB 10000 GOTO 1000
4000 REM * COPY *
4010 PRINT cls$ PRINT bu$ "COPY RECORDS"
 eu$
4020 PRINT
4030 PRINT "Record to be copied (1-" nor
$
4040 INPUT ")  >",rec1%
4045 IF rec1%<1 OR rec1%>nor THEN PRINT
bel$ GOTO 1000
4050 PRINT
4060 PRINT "Copy record" rec1% "to which
 record? (1-" nor$
4070 INPUT ")  >" rec2%
4080 IF rec2%<1 OR rec2%>nor THEN PRINT
bel$ GOTO 1000
4090 PRINT
4100 PRINT "Confirm copy" rec1% "to" rec
2% " (Y/N) "
4110 f$="YyNn" GOSUB 10000
4120 IF i>2 THEN PRINT bel$ GOTO 1000
4130 GET 1,rec1%
```


All Sorts

Mike Lloyd

Sorting routines are an essential feature of many computer programs and a great deal of time and effort is expended developing more efficient sorting algorithms One of the fastest the Quicksort is recursive and therefore cannot properly be implemented on most home computers Although this is no drawback to the QL it is not particularly popular because the procedure listing is lengthy and recursion is relatively slow and uses large amounts of RAM

To provide an efficient but non recursive sorting routine for the QL I have developed a variation of the ripple sort technique which could easily be converted to most other Basic dialects

During sorting most time is wasted shuffling values into and out of the array Ripple sorts reduce this shuffling by keeping a value in a temporary store until the correct position in the list is found for it This means that the routine makes only a single pass through the array My variation helps in finding the correct place for each value in turn

The quickest way of finding the correct place for a value within a sorted list is to divide the list in half and test to see which half should hold the target value That portion of the list is then divided into two and the test repeated until the actual position is found This is known as a binary search

The Mikesort takes the first unsorted item in the array as its target value The array elements before it in the list are those which have been sorted into order and this area of the array is tested using the binary search method to determine where the target value is to be placed The target value is removed to a temporary variable thus creating a space in the array The array elements between the target value s old position and its destination are shuffled down one space The target value is then moved from the temporary variable into its proper place

Mikesort works without variation on arrays of any variable type (integer string or real number) This will not be possible on other computers and an appropriate variable type for *temp$* will need to be used Conversion should also take into account the SuperBasic function *Dimn* which returns the number of elements in an array

```
100 REM
110 DIM         (20)
120 FOR       TO 20  number -          R*
D(99)
130 PRINT   unsorted " number
140 mikesort numbers
150 PRINT    sorted:      numbers
160 STOP
```

Listing

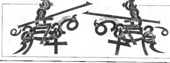
```
200 DEFine PROCedure mikesort (array)
204 LOCal      y  loop  mid,    , lo
208 FOR          TO DIMN (array)
212   IF array (        array       )
216     temp$   ar ay
220     lo   1          )
224     REPeat loop
228       mid   INT   1 -lo   )
232       IF    lo   )
236         mid   mid + a rray(       t
emp$)
240         EXIT loop
244       END IF
248       IF array  mid      temp$
252         lo = mid
256       ELSE
260         hi = mid
264       END IF
268     END REPeat loop
272     FOR y = x TO mid+1 STEP   )
276       array (y       array   y   )
280     END FOR y
284     array (mid)   temp$
288   END IF
292 END FOR x
296 END DEFine mikesort
```

Joystick Test

Peter Graves

The following program for the Commodore 64 or C128 in C64 mode allows you to test the joystick port 1 to see whether it is working correctly.

Also by examining the bit status of the memory location 56321 which is displayed on the screen you can determine which values relate to which joystick positions.



```
100 REM JOYSTICK REGISTER OPERATION     BY PETER GRAVES
110 POKE 646,1 POKE 53281,6 POKE53280,6
120 GOTO  1000
130 PRINT "J" PRINT TAB(11) "■■JOYSTICK OPERATION■■"
140 PRINT TAB(7) "           F J ← [ ↑"
150 PRINT TAB(7) "BIT  7 6 5 4 3 2 1 0"
160 PRINT TAB(11) "┌┬┬┬┬┬┬┬┐"
170 PRINT TAB(11) "|||||||| |"
180 PRINT TAB(11) "└┴┴┴┴┴┴┴┘"
190 PRINT TAB(7) "■DECIMAL " PRINT "■■■NOW OPERATE THE JOYSTICK IN PORT 1!"
200 POKE1410,(PEEK(56321)AND1)+48 POKE1408,(PEEK(56321)AND2)/2+48
210 POKE1406,(PEEK(56321)AND4)/4+48 POKE1404,(PEEK(56321)AND8)/8+48
220 POKE1402,(PEEK(56321)AND16)/16+48
230 PRINT"■■■■■■■■■■■■"TAB(15),PEEK(56321),"= PEEK(56321)" GOTO 200
1000 REM
1010 PRINT CHR$(142)
1020 PRINT "■■■■■■■■SETTING UP - WAIT A MOMENT!"
1030 POKE52,48 POKE56,48 CLR POKE56334,PEEK(56334)AND254 POKE1,PEEK(1)AND251
1040 FORI=0TO1023 POKEI+12288,PEEK(I+53248) NEXT POKE1,PEEK(1)OR4
1050 POKE 56334,PEEK(56334)OR1 POKE 53272,(PEEK(53272)AND240)+12
1060 FOR N=12520 TO 12527 READ A POKE N,A NEXT
1070 FOR N=12504 TO 12511 READ A POKE N,A NEXT
1080 DATA 0,8,12,254,254,12,8,0
1090 DATA 0,24,24,24,126,60,24,0
1140 GOTO 130
```

Programming: Spectrum

Championship Bowls

Colin Speed

Championship Bowls is an all machine code, icon driven game for two players. The object as I'm sure you're well aware after the bowls on the TV recently is to finish an end with your bowl(s) closest to the jack.

The game supports a variety of joysticks or the keyboard can be used as follows:

Left – Q E T U or O

Right – W R Y I or P

Fire – Any key on the bottom two rows

The six icons at the bottom of the display have the following functions – change shot direction, increase power, decrease power, select backhand (default), select forehand, release bowl.

The listing is in two parts, the final section coming next week.

```
10 CLEAR 59999: LET add=60000
 20 FOR n=1 TO 146
 30 READ a$,a: LET tot=0
 40 FOR f=1 TO LEN a$ STEP 2
 50 LET x=16*(CODE a$(f)-48-7*(a$(f)>"9
"))+CODE a$(f+1)-48-7*(a$(f+1)>"9")
 60 POKE add,x
 70 LET tot=tot+x
 80 LET add=add+1
 90 NEXT f
 100 IF tot<>a THEN  PRINT "ERROR IN DAT
A - Line ";n*10+190: BEEP .5,0: STOP
 110 PRINT AT 0,0;"LINE ";n*10+190;" OK"
 120 NEXT n
 130 PRINT  "DATA OK"
 140 PRINT '"Save this code after the BA
SIC" "loader."
 150 SAVE "BOWLS"CODE 60000,4473
 160 STOP
 200 DATA "CA785C22765C1DE5F6CD45FE21000
U224EF5AF32FEEB4E0CDC116CDA5EA",3959
 210 DATA "CD1BF3CDB0EBCD01F5CD64F111307
51B7A0320FBCDC6F121FEED4E01AE77",4606
 220 DATA "C1DCF93C5CDA0F30D01BBE21004
```

```
0110140011FF17360UEDB83EAF0604CE",3000
230 DATA "1012130D20FBEE181F5062OEB363
12310FB0E110E1F362120F03A3123",2145
240 DATA "0D20F3062046312310FB0EUFU6U60
E1077230D20FBEE161UF5UEU73C405C ,2106
250 DATA "3E1001FE 120EB21B05011FEB060
5CDECF021DE5011B4EBCDD5FU06092C",3735
260 DATA "11[illegible]EB[illegible]DD5F0[illegible]F5231174EB
DD5FUCYDD2185FB210F901[illegible]5060D3E",4266
270 DATA "[illegible]DD7101ID[illegible]13DD750FDD74
6DD3E0B00DD3E0C10DD360DE0E5C5CD" 2842
280 DATA "EBEE1E1112U001979C6144F1UD6C
95U4F57455[illegible]404[illegible]70000[illegible]0U4[illegible]',2234
290 DATA "FF0000000[illegible]404FC0000000000C
DFFEBCD44ECDC219FB06092100AUDE" 2642
300 DATA "CB0[illegible]4620140DC[illegible]562807DD7EUBA
7[illegible]24DD7EUBA72[illegible]12C11100DD14" 2768
310 DATA "10DF7DA7[illegible]7CA72[illegible]C11E8031B7AB
3[illegible]0FB10C2213UF[illegible]114[illegible]F97CAA577IAB 3684
320 DATA "9F3AFEEBA72[illegible]2140F[illegible]DI[illegible]A5FBU
E[illegible]DD3E00[illegible]0[illegible]3E0A00D[illegible]3[illegible]C0 DD 4" 3025
330 DATA "UD[illegible]C1D7[illegible]5DD74067CAAE77EAP6FD
511[illegible]0UEE1[illegible]D11UD[illegible]UEFE[illegible]2UEF1B[illegible]" 3406
340 DATA "04E[illegible]1FE5043[illegible]DA22[illegible]43CECDDCB0
05EC43CEC216A0[illegible]A7ED42E5CDA[illegible]2[illegible] 4",3911
350 DATA "3CEC2105[illegible]0A7ED42[illegible]C2181EFDD750
0DD7401D1DD7302DD72C3C9753F477[illegible]" 3547
360 DATA "[illegible]F1F0[illegible]FD[illegible]125FB[illegible]3FEE[illegible]5C[illegible]
BELC1DEE1110006DD1910F0C9D0C[illegible]0" 3977
370 DATA "4ECD0DCBC04ECAEFEDED7EUBA7[illegible]
D350DDE7EU1DD77UEDE7E020DD77UFDU",3938
380 DATA "C0015[illegible]2[illegible]7EEFE5[illegible]0E51B04E31FE5U
4E3E40FC3023[illegible]CDA2[illegible]4[illegible]ECDDCB00" 3755
390 DATA "5E[illegible]43CEC[illegible]5[illegible]DA22[illegible]43CECDDE5DD2
151EFDD6E00DD6E01U97CA75DDE1C1" 4446
400 DATA "C2FEED7DD[illegible]0[illegible]AFEEDFEF[illegible]D2FEE
DD[illegible]E[illegible]D2181EFDD6EU2DD6030[illegible]7CA7',5120
410 DATA "DDE1[illegible]2FEED7DFEA7D2FEEDFE20DAF
EEDD[illegible]0[illegible]AFEEDFE20DAFEE[illegible]D[illegible] 59[illegible]4
420 DATA "EBEEDD[illegible]D7301DE720[illegible]1856CDEBEED
D7B[illegible]A6DD7E03A7FA1[illegible]EDD06A1D[illegible] 7" 4534
430 DATA "ED1[illegible]06DD0601D[illegible]7EDE0[illegible]0CDC[illegible]7E
DFEFEDDC7EDDD7EC20DD6604FEA7D[illegible] ,4494
440 DATA "EDD[illegible]4[illegible]DDA0EDFE20DA[illegible]ED[illegible]B0
066C2E1EDED7E01DD6603ED77C1DE7E ,4827
450 DATA "[illegible]2DD[illegible]4ED77[illegible]2CDEBEEDD[illegible]E7
AA7F81195FDA7DDE[illegible]E[illegible]EI 52C1B2[illegible]0",4347
460 DATA "5CDD[illegible]E01DD[illegible]60[illegible]E511100DD1
[illegible]CD03EEE1DC7AEE1[illegible]F1C[illegible]E[illegible]DC22B0',3961
470 DATA "5CDD2195FB00[illegible]E01DD[illegible]60[illegible]DE1D[illegible]E
5CD03EEDD6E01DD[illegible]0[illegible]2195FBDC7A ,4392
480 DATA "EEDDE1DC[illegible]E01DD660[illegible]2DD2195FA060
0E511100DD19C14CEEE1DC7AEE10F1",4098
490 DATA "C9AFDD[illegible]60C0E7701DDCB00E6C9DD[illegible]
[illegible]A718[illegible]DD7E0DC[illegible]7DC77U2CDE5E1" 4024
500 DATA "1D[illegible]3[illegible]D[illegible]4U0DD360[illegible]1195F
DA7E052CA55E0DD36[illegible]00DDCDE0EE16' 3448
510 DATA "DEA7DDCBC046E0DC5E01DD5602C9
2677[illegible]FA7FA1EEFE00D07CA7F[illegible]A',4218
520 DATA "EEED44FE[illegible]C0[illegible]5FE13C9FEC[illegible]DU05F
E11C[illegible]ED44FE[illegible]C[illegible]F7CA7F245EEED44" 4733
530 DATA "FE0DD005FE11C9FEU90[illegible]5FE0BC9A
7D[illegible]B[illegible]46CDD[illegible]E011D56[illegible]7092E77C",4134
540 DATA "93AFB4C07CA7F267EEED44E7FE0DD
07DA7F272EEED446FFE0DD0D4FE13C9",4778
550 DATA "[illegible]A485C1F1F1FC50E05[illegible]3EE10D3FE0
6841UFE[illegible]D20F5C1FEDD7E0195C02FDD ,3571
560 DATA "77[illegible]3DD7E0294C[illegible]2FD[illegible]77[illegible]4DDE5DD2
ABU5 117EUA[illegible]2FDE77UDCDE1[illegible]EUB" 3425
570 DATA "C[illegible]U[illegible]17BDD770BA70DE[illegible]40BC
93EBF9U477[illegible]5FC83FCB3FCB[illegible]F4F7[illegible]E[illegible]" 3711
580 DATA "07[illegible]640A779E[illegible]1F1F1F[illegible]46778E63
[illegible]171731EF78EEC7C9[illegible]4E01D[illegible]4[illegible]2CD',3[illegible]
590 DATA "C5EEED44E607DDE[illegible]DC4E0DDD460
2DDEE05DD5[illegible]DD6DE1E5C906U3E1DU" 42[illegible]
600 DATA "5E0[illegible]DD2DDE56[illegible]CDD2[illegible]3F5U[illegible]F1221
3UE0UCB23C[illegible]12C[illegible]113D20F779[illegible]B047",3041
610 DATA "79AE772[illegible]7AAE[illegible]0477AAE772[illegible]79AA8
0477BAE77[illegible]5D[illegible]0[illegible]0D2808015[illegible]EFE5D9'.4042
620 DATA "E11[illegible]C0DDE1C[illegible]E7[illegible]A72U0911E017E
152[illegible]0EBFC9F5E[illegible]072[illegible]0524F10ED1C9",4038
630 DATA "F1FE40[illegible]112[illegible]918F2FE0[illegible]3[illegible]F
E21E0[illegible]6A7ED5218E600[illegible]000U21A2F0',303[illegible]
640 DATA "[illegible]4[illegible]01[illegible]3[illegible]3EA[illegible]24EF[illegible]EF
F[illegible]2E5[illegible]32[illegible]05CF[illegible]36F7[illegible]EA[illegible]52C5 ,[illegible]
650 DATA "C0[illegible]F0[illegible]047EB1A97724[illegible]0F[illegible]10F1
0EFAFC[illegible]4FF0CDE0F0CD06F2C[illegible]27F221",4152
660 DATA "C0EFE[illegible]D[illegible]E[illegible]FEU[illegible]DEFE15DA7
EFUFE190[illegible]FE[illegible]A01FAFE2D[illegible]FE3DEA",4[illegible]
670 DATA "1[illegible]FUFE41D[illegible]FE51DAE0FUFE5[illegible]FE6
51AFFFUFE6[illegible]D[illegible]FE7[illegible]3AADF0CD4FF[illegible]',[illegible]
680 DATA "CDEBEEE1C[illegible]061[illegible]5EE0E[illegible]847C
B3[illegible]10FC[illegible]3A4EF0FEAD0[illegible]4F38324EF[illegible]" 4440
690 DATA "[illegible]47E81A97[illegible]410F911C06
[illegible]DBUF0[illegible]A4EF0FEFDD03[illegible]24EF04F" 396[illegible]
700 DATA "CD[illegible]5F00[illegible]47E8177241UFA11[illegible]005C
DB0F0C[illegible]A[illegible]1[illegible]AF15FCB2[illegible]1601[illegible]4E2[illegible]',5200
710 DATA "4[illegible]F[illegible]C5E06540E0[illegible]BE522C11E01160
1CB7[illegible]2[illegible]4C[illegible]16FFCDBA24F1[illegible]F10F",[illegible]54[illegible]
720 DATA "5[illegible]0[illegible]AAEF04F[illegible]ADF3C5[illegible]4FF[illegible]18
1FE1E[illegible]015C[illegible]4FF[illegible]32ADF011F401187A" 39[illegible]6
730 DATA "B32[illegible]FF11D[illegible]CEB0F0[illegible]991F53AAEF
0EI443[illegible]AEF0F110CE0001[illegible]03A4[illegible]5[illegible] B",4058
740 DATA "2FCB2FCB2FF34[illegible]EE10D3FE4[illegible]0D20F
D11F6FB[illegible]9E56F[illegible]0[illegible]2[illegible]24E[illegible]0[illegible]",3[illegible]37
750 DATA "19EDE1E[illegible]0[illegible]P1A771[illegible]241[illegible]FAE1C9[illegible]
F3[illegible]AFF021F15011[illegible]EF1[illegible]0D51A[illegible]5CD" 3546
760 DATA "C7F0C1[illegible]3011310F411[illegible]A[illegible]CD80F0C
[illegible]EFF32AFF021F150111BF1[illegible]0C1[illegible]E" 3[illegible]87
770 DATA "42414348484[illegible]4E442[illegible]C[illegible]434F54464
F5245464[illegible]4E44[illegible]534E4F[illegible]40[illegible]0F0[illegible]0E ,1[illegible]62
780 DATA "[illegible]D0B[illegible]0C0B[illegible]0A[illegible]D[illegible]90E0[illegible]E07A
F0[illegible]F05[illegible]F04100[illegible]0[illegible]10[illegible]110[illegible]110[illegible]2" 5[illegible]
790 DATA "1[illegible]0F[illegible]40F85[illegible]F3[illegible]E[illegible]7[illegible]E[illegible]0D[illegible]
[illegible]ADC3D0[illegible]0[illegible]0[illegible]8E[illegible]6[illegible]FD[illegible]2[illegible]A5FB' 2[illegible]11
800 DATA "[illegible]0[illegible]00[illegible]1U5D0[illegible]026
ADIE5CD44D D[illegible]E1DDCB00[illegible]ADE5[illegible]',39[illegible]
810 DATA "EFDDE1[illegible]AFF[illegible] B7F2[illegible]13214[illegible]FA[illegible]A
DF0A7[illegible]61F47[illegible]2[illegible]3[illegible]10F[illegible]151[illegible]DD",[illegible]
820 DATA "[illegible]DE21[illegible]1FA[illegible]A[illegible]FUA72[illegible]0847[illegible]
B2B2B[illegible]B1UF9E[illegible]A[illegible]5C1[illegible]0F00[illegible]EBE1",[illegible]
830 DATA "U1[illegible]EU0EDB121[illegible]FA[illegible]105[illegible]ED0[illegible]EB3
6C0[illegible]A4EFU[illegible]6A[illegible]67E[illegible]21640[illegible]" [illegible]
840 DATA "EF1600[illegible]EBE17[illegible]3[illegible]0DD[illegible]60
[illegible]2BDDE5CD[illegible]CEB[illegible]EIDDCB0[illegible]111000",3[illegible]
850 DATA "1D1[illegible]E105[illegible]26A[illegible]1C[illegible]DD[illegible]175FBD[illegible]
102DD3[illegible]213216UF9[illegible]75U5ED[illegible]406DD ,3667
860 DATA "[illegible]0C[illegible]FED[illegible]CDEBEE[illegible]CD3EF2C
D6AF2CB[illegible]7C[illegible]1FF5[illegible]447F2F11FF5[illegible]4[illegible]",4427
870 DATA "F2F[illegible]10E[illegible]114[illegible]0[illegible]1B7AB[illegible]20FB[illegible]
E01A7[illegible]CDEBEED[illegible]01CDEBEEC3DD7E" 4533
880 DATA "[illegible]1FE7[illegible]C[illegible]DEBEED[illegible]3401CDEB[illegible]ECY3
A1AF3A72[illegible]03DCADAF2[illegible]AEFF23DCA",4[illegible]7
890 DATA "FEF2[illegible]EF0DBFE2FEE1547[illegible]EDFDBF
E2FE[illegible]A4FAFB0B12[illegible]2[illegible]EU1F5[illegible]EF0DB".430[illegible]
900 DATA "FE[illegible]FE6[illegible]A47[illegible]EDFDBFE2FE61[illegible]4FAFB
0B12[illegible]0[illegible]EU[illegible]47F1B0F53EFEDBFE2FE6" 41[illegible]
910 DATA "1F473E7FDBFE2FE61FB047[illegible]EFDDE
E2FE6[illegible]FB[illegible]47[illegible]EBFDBFE2FE61FB047AF",4118
920 DATA "B[illegible]2[illegible]0[illegible]E[illegible]447F1B0[illegible]F[illegible]01F471FE
6014F7[illegible]17E6[illegible]2B14F7[illegible]1F1FE6[illegible]4B12F'[illegible]295[illegible]
930 DATA "[illegible]EF7DBFE47E6[illegible]4F761F1FE6[illegible]48
1C[illegible]EF7DBFE1F1F1F1FE6[illegible]167[illegible]EEFDB ,[illegible]920
940 DATA "FE6F1717E[illegible]04846[illegible]7D1FE60284C90
0D02[illegible]25FB0D36[illegible]10[illegible]D[illegible]3[illegible]0[illegible]2130F[illegible]" 341[illegible]
950 DATA "DD7[illegible]0[illegible]0D740[illegible]D76[illegible]C0CDD76[illegible]D0[illegible]C
DEBEE[illegible]142F[illegible]DD[illegible]A018[illegible]DD75[illegible]FDD7406" [illegible]41[illegible]
960 DATA "CDEBEE[illegible]193441127F4[illegible]D70F321134
41132F4CD70F3[illegible]1[illegible]E44[illegible]4AEF5[illegible]DA7F3 ,3744
970 DATA "2[illegible]1E44[illegible]4FF[illegible]DA7F[illegible]C91A1[illegible]471AD
[illegible]C5[illegible]D30F3C1E11[illegible]2[illegible]10F4[illegible]9E5[illegible]2[illegible]00" 375[illegible]
980 DATA "2[illegible]2[illegible]9E1[illegible]0[illegible]5C[illegible]9EBE1E50[illegible]041A7
71324[illegible]0FA01E0[illegible]7A7E[illegible]42[illegible]6041A771[illegible]" 2663
990 DATA "2410FAE1C[illegible]60[illegible]0[illegible]A381104[illegible]0[illegible]A3
80304[illegible]60AF[illegible]79C630CD80F3F1[illegible]C[illegible]8A ,3217
1000 DATA "C6[illegible]0C[illegible]0F3[illegible]E[illegible]4F47A4[illegible]F5A7[illegible]A3
DF4[illegible]E1E[illegible]3E0B073E[illegible]6E[illegible]E1UC73E[illegible]7' [illegible]
1010 DATA "D7[illegible]E11[illegible]73E[illegible]D73E151[illegible]AFD7[illegible]A4DF
[illegible]C630D7[illegible]E2U17114FF4AFCD0A[illegible]3A4E",350[illegible]
```

Spreadsheet

D Lester

On with the instructions for this BBC/Electron program

F allows the inputting of formula It takes the form of A4 + D7 (as an example) The procedure will handle any formula using + – / * ( ) To save typing out things like A1+A2+A3 +A18 you can use $A1 A18

P displays the formula contained in the current cell position (if any)

U forces an update

T toggles between manual updating and auto update

< and > decrease and increase the page respectively The function keys go direct to the corresponding page

N names a sheet/file which is used when saving (via the main menu)

A toggles between adding new values to old (+ flag) and entering new values absolutely

S puts a copy of the current formula into a buffer for use with the option below

Copy copies the buffer contents to a cell Row changes and column changes are automatically compensated for

Escape returns you to the main menu

The program is error trapped and queries any drastic decisions

```
1890IFz(a% y%-2)=0ENDPROC
1900IFc$(a% y%-2)<>""VDU7:PROCc.PRINTTAB(1 0)"OK to overwrite ":v$=GET$:PROCc:PRINTTAB 19 0)SPC 1):IFv$<>"Y"ENDPROC
1910PROCc
1920PRINTTAB(x%+1,y%);SPC(9)
1930c$(a% y%-2)="":b$=""
1940PROCc.PRINTTAB( % y%)"*",PROCc:REPEAT.z$=GET$:b$=b$+z$:PRINTTAB(x%+10-LEN(b$) y%)z$:UNTIL VAL(b$)>9999.99ORz$>"9" ORz$<"."ORLEN(b$)>9
1950IFad=0c(a% y%-2)=c(a%,y%-2)+VAL(b$) ELSEc(a% y%-2)=VAL(b$)
1960IFc(a%,y% 2)>9999.99c(a% y%-2)=9999.99
1970*FX15
1980n=c(a%,y%-2)
1990PROCc:PRINTTAB( % y%)SPC(10)
2000@%=&20209
2010z$=STR$(n)
2020IF[illegible]
2030L%=INT(LOG(n))+4
2040IFINSTR(z$,".")=0z$=z$+".00"
2050IFx%<11%-4
2060@%=&20209
2070PRINTTAB(x%+9-L% y%);n
2080IF[illegible]REPEAT.y%=y%+1:UNTIL z(a% y%-2)=0[illegible]
2090IF[illegible]ENDPROC
2100ENDPROC
2110DEF PROCe
2120@%=&20209
2130r=EVAL(c$(x% yc%))
2140IFr[illegible]GOTO21[illegible]
2150L%=INT(LOG(ABS(r)))+4
2160IFr[illegible]
2170IFr>9999.99r=9999.99:L%=[illegible]
2180PROCc:PRINTTAB(xt%-17,yc%+2)SPC(9)
2190PRINTTAB(x%+[illegible] 9,yc%+2):r:PROCc
2200c(x% yc%)=r
2210ENDPROC
2220DEF PROCfm
2230IFz(x% y% 2)=0ENDPROC
2240A%=&0090A
2250b$="":a$="":ta$="":z$=""
2260PRINTTAB(3 0)SPC(37):PROCc:PRINTTAB(2 0)" ";CHR$(65+(x%-2)/11+15*p%*2)+STR$(y%-2)" = ";:REPEAT:PRINTTAB(7 0)ta$:z$=GET$:ba$=ba$+z$:UNTILz$=CHR$(13)ORLEN(ba$)>20ORz$=CHR$(127)
2270IFz$=CHR$(127)ba$=LEFT$(ba$,LEN(ta$)-2):PROCc:GOTO2260
2280IFLEN(ta$)>2ba$=ta$:PROCc:ba$="":z$="":GOTO2260
2290FROC[illegible]fc$=a$+ta$
2300PRINTTAB(1 0)[illegible]PRINTTAB(3,0)c$(1[illegible]PRINTTAB(17 0)CHR$(229)
2310IFLEN(fc$)=0ENDPROC
2320letter=1
2330a$=MID$(fc$ letter 1)
2340IFa$="$"PROCsum:ENDPROC
2350IFa$<"A"OR a$>"Z"b$=b$+a$:GOTO2390
2360IFa$[illegible]st$=STR$(ASC(a$)-64):b$=b$+"c("+st$+",":GOTO2390
2370IFa$<>"/"AND a$<>";"AND (MID$(fc$ letter+1 1)>"@"OR MID$(fc$ letter+1 1)[illegible]) AND MID$(fc$ letter+1 1)<"0"b$=b$+a$+")":GOTO2390
2380b$=b$+a$
2390letter=letter+1
2400IFletter=LEN(fc$)+1 THEN 2420
2410GOTO 2330
2420c$((15+(x%-2))/15)+1+(p%*2),y%-2)=b$
2430IFT%=0PROCup:ENDPROC
2440ENDPROC
2450DEF PROCsave
2460VDU19,1,1;0;:PRINTTAB(11,3);
2470file=OPENOUT LEFT$(c$(0 0),10)
2480FORx=0TO18
2490FORy=1TO20
2500IFc(x y)=0 THEN 2520
2510PRINT#file x,y,c(x y)
2520NEXT:NEXT
2530PRINT#file,0 0,0
2540FORx=0TO18
2550FORy=0TO20
2560IFc$(x,y)="" THEN 2580
2570PRINT#file,x y c$(x,y)
2580NEXT:NEXT:CLOSE#file
2590VDU7:VDU19,1 2;0;
2600PROCmenu
2610ENDPROC
2620DEF PROCload
2630VDU19,1,4;0;
2640*FX15 0
2650INPUTTAB(10 23)"FILE NAME";name$
2660file=OPENINLEFT$(name$ 10)
2670REPEAT
2680INPUT#file,x,y,c(x y)
2690UNTILy=0
2700REPEAT:INPUT#file x y c$(x y):UNTIL EOF#file
2710CLOSE#file
2720VDU7:VDU19 1 2;0;
2730PROCmenu
2740ENDPROC
2750DEF PROCsum
2760b$=""
2770L%=LEN(fc$)-1
2780line$=MID$(fc$,2,1)
2790let$=STR$(ASC(line$)-64)
2800pt%=0
2810REPEAT
2820pt%=pt%+1
2830IFpt% [illegible]ENDPROC
2840UNTIL MID$(fc$ pt% 1)=" "
2850no$=MID$(fc$,3,pt%-3)
2860tw$=MID$(fc$ pt%+1,1)
2870IFL%+pt% 10 OR L%+pt%=12nt$=MID$(fc$,L%[illegible]):ELSE nt$=MID$(fc$,L%-1,2)
2880IFline$<>tw$PROCud:ENDPROC
2890lp%=VAL(no$)
2900b$=b$+"c("+let$+","+STR$(lp%)+")"
2910lp%=lp%+1
2920IFlp%>VAL(nt$)+1ENDPROC
2930IFlp%=VAL(nt$)+1 THEN 2960
2940b$=b$+"+"
2950GOTO2900
```



```
2960c$(((15+(x%-25))/15)+1+(p%*2),y%-2)
=b$
2970ENDPROC
2980DEF PROCch
2990lp%=(ASC(lo$)-64)
3000b$=b$+"_("+STR$(lp%)+","+no$+")"
3010lp%=lp%+1
3020IFlp%>(ASC(lo$)-64)+1 THEN 3060
3030b$=b$+"+"
3040IFlp%=(ASC(lo$)-64)+1b$="":ENDPROC
3050GOTO3000
3060c$(((15+(x%-25))/15)+1+(p%*2),y%-2)
=b$
3070ENDPROC
3080DEF PROCscr
3090nr=0:b$=""
3100X=(x%-10)/15+(p%*2+1):Y=y%-2
3110IFc$(X,Y)=""ENDPROC ELSE q$=c$(X,Y)
3120PROCc:PRINTTAB(4,0)SPC(7)"Assembling formula. .
3130FOR lp%=1 TO LEN(q$):pr=0
3140a$=MID$(q$,lp%,1):IFa$="_"nn=1:GOTO
3200
3150IFa$="(" AND nn=1REPEAT:pr=pr+1:UNTIL MID$(q$,lp%+pr,1)=","
3160IFa$=")" AND nn=1nn=0:GOTO3200
3170IFpr=2b$=b$+CHR$((VAL(MID$(q$,lp%+1
,1))+64)):lp%=lp%+2:GOTO3200
3180IFpr=3b$=b$+CHR$((VAL(MID$(q$,lp%+1
,2))+64)):lp%=lp%+3:GOTO3200
3190b$=b$+a$
3200NEXT
3210PROCc:PRINTTAB(1,0)SPC(37)
3220l%=LEN(b$)
3230PRINTTAB(1,0)CHR$(X+64);Y;"=" LEFT$
(b$,32);
3240IFl%>32PRINT"..":a=GET:PRINTTAB(1,0
)SPC(38):PRINTTAB(1,0);RIGHT$(b$,l%-32)
3250a=GET:PRINTTAB(1,0)SPC(38):PRINTTAB
(3,0)c$(0,0):PRINTTAB(17,0)CHR$(229)
3260b$="":ENDPROC
3270DEF PROCcopy
3280b$=""
3290IFco$="S"xp%=(x%-10)/15+(p%*2+1):yp
%=y%-2:fm$=c$(xp%,yp%):ENDPROC
3300PROCc:PRINTTAB(21,0)"  Copying...
":PROCc
3310FOR sp=1 TO LEN(fm$):a$=MID$(fm$,sp,
1):pr=1
3320IFa$="("REPEAT:pr=pr+1 UNTIL MID$(f
m$,sp+pr,1)=","ELSE3360
3330a$=MID$(fm$,sp+2,pr-2):sp=sp+pr-1
3340IFVAL(a$)=xp%a$=STR$(INT((x%-10)/15
+(p%*2+1)))
3350a$="("+a$:GOTO3400
3360IFa$=","REPEAT:pr=pr+1:UNTIL MID$(f
m$,sp+pr,1)=")":ELSE3400
3370a$=MID$(fm$,sp+1,pr-1):sp=sp+pr
3380IFVAL(a$)=ypa$=STR$(y%-2)
3390a$=","+a$+")"
3400b$=b$+a$:NEXT:c$(((15+(x%-25))/15)+
1+(p%*2),y%-2)=b$:PRINTTAB(21,0)SPC(15):
ENDPROC
3410DEF PROCc
3420IFf%=1f%=0:ELSEf%=1
3430IFb%=128b%=129:ELSEb%=128
3440COLOURf%:COLOURb%:ENDPROC
3450DEF PROCp
3460lp=0:lm=12
3470VDU2,1,27,1,15
3480*FX3 10
3490FOR x=lp+0 TO lp+lm:PRINTTAB((x-lp
)*10+3);c$(x,0);
3500NEXT:VDU13
3510FOR y=1 TO 20
3520PRINTTAB(0)c$(0,y);
3530FOR x=lp+1 TO lp+lm:PRINTTAB((x-lp
)*10+3)c$(x,y):NEXT:VDU13:NEXT:FORpp=1
TO 14:PRINT"":NEXT
3540IFlp<12lp=12:lm=6:GOTO3490
3550*FX3,4
3560VDU3:VDU7:PROCmenu:ENDPROC
```

Pine Tree Generator

D C Nevill

This QL procedure prints a pine tree at a given position (x y) and of a given height (l) on the screen.

The procedure may be used within a loop putting random values into these parameters to produce landscapes of trees. Screens like this may be useful in games or other programs requiring complex graphics.

```
100 DEFine PROCedure Pine(x,y,l)
110 LOCal s,yp,bl,a,xf,yf
120 LINE x,y TO x,y+l
130 FOR s = 1 TO 10
140     yp = y+l-s*l*6.6E-2
150     bl = 1/3-(10-s)/10*1/3
160     a  = 45-(10-s)*4.5
170     a  = RAD(a)
180     xf = x-SIN(a)*bl
190     yf = yp-(bl^2-(SIN(a)*bl)^2)^.5
200     LINE x,yp TO xf,yf
210     LINE x,yp TO x+(x-xf),yf
220 END FOR s
230 END DEFine Pine
```

Quick Sort

J E Mucklow

This sorting program was written on an Atari ST but will work on other computers with very little modification. The variables are as follows:

A=Outer loop. B=Inner loop. C=Array containing numbers to be sorted. L=Upper limit of array. T=Temporary variable and M=Position of top value of array in B loop.

```
10 FOR A = 1 TO L
20 M = A
30 FOR B = A TO L
40 IF C(B) > C(M) THEN M = B
50 NEXT B
60 T = C(M): C(M) = C(A): C(A) = T
70 NEXT A
```

Triumph Adler Dump

D O Nevill

The procedure for the QL allows a screen to be printed on the Triumph Adler daisywheel printer operating in graphics mode.

The routine assumes that the printer is connected using a standard serial to parallel Centronics interface operating at 9600 baud.

The programme takes approximately 10 minutes to run.

```
100 REMark *** S C R E E N   D U M P ***
110 REMark *** QL to TRD7020 Printer ***
120 DEFine PROCedure Dump_Screen
130 LOCal r$,b$,l,r,c,w,b,z:BAUD 9600:OPEN #3 ser1
140 r$=CHR$(27)&CHR$(51):b$="        ":l=131070
150 FOR r=0 TO 255
160   PRINT #3,r$ CHR$(10);
170   FOR c=0 TO 127 STEP 2
180     l=l+2:w=PEEK(l)
190     IF w=0 THEN
200        PRINT #3,r$;b$;
210           ELSE
220        FOR b=7 TO 0 STEP -1
230          PRINT #3 r$;" ";:z=INT(w/2^b)
240          IF z/2 INT(z/2)THEN PRINT #3,r$;".";
250        END FOR b
260     END IF
270 END FOR c:END FOR r:CLOSE #3
280 END DEFine Dump_Screen
```

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With Kenn Garroch

Graphic confusion

M Michaelson of Basingstoke Hants writes

Q I have been programming my C64 for about six months now, and am still a little confused about the high res graphics modes, particularly, Bit Mapped Multi Colour mode. What I don't understand is where their colours are kept, and how they are represented on the screen Could you help?

A Bit Mapped Multi Colour mode on the Commodore 64 is about the most common graphics mode used since it allows four different colours to be used per character square To set it up choose where you want your VIC RAM bank to be e g 0 1 2 or 3 and POKE 56576 to select it for example POKE 56576 2 to select Bank 2 starting at 16384 Next set bitmap mode with POKE 53265 PEEK (53265) OR 32 and multicolour mode with POKE 53270 PEEK (53270) OR 16 Position the bitmap and lower colour map with POKE 53272 121 this starts the bitmap at $6000 ($ denotes hexadecimal notation) and the lower colour map at $5C00

The screen resolution in this mode is 160x200 with two bits defining one of four colours in the following way

00	Background colour in 53281 (0–15)
01	Hi nibble in lower colour RAM ($5C00)
10	Lo nibble of lower colour RAM ($5C00)
11	Lo nibble of high colour RAM ($D800)

Each of the colour Rams contains 1000 bytes each nibble setting the colour of a 4x8 block of pixels in the bitmap depending on the bits as above The bitmap is set up as follows

Each byte contains 4 sets of 2 bits so taking the top left most pixel on the screen the colour is set with XX000000 where XX can be 00 01 10 or 11 each pair refering to a specific colour The next pixel to the right is set with 00XX0000 the third with 0000XX00 and the fourth with 000000XX So to set the second pixel from the left in the top row to the colour specified in 55296 ($D800) POKE 24576, 32+3218 i e both bits to one The Bitmap itself is set out in the following way

Byte contents		Byte contents	
0	00 00 00 00	8	00 00 00 00
1	00 00 00 00	9	00 00 00 00
2	00 00 00 00	10	00 00 00 00
3	00 00 00 00	11	00 00 00 00
4	00 00 00 00	12	00 00 00 00
5	00 00 00 00	13	00 00 00 00
6	00 00 00 00	14	00 00 00 00
7	00 00 00 00	15	00 00 00 00

and so on for 40 blocks or 320 bytes and then for 25 lines

Hence the screen image is made up from 40x25 blocks of eight bytes each defining 32 pixels hence 32000 pixels or 160x200 To find the location of a specific byte given its X Y coordinates use the following formula

Memloc=((INT(Y/8))*320)+(y (INT(y/8)*8))+(INT(X/4)*8)

This is the offset from the start of the screen so to get the address in memory add the bitmap start address $6000 (24576)

Once the particular byte is found the bit pair needed to set the colour are found with BP=X (INT(X/4)*4) but remember that these are in reverse order so if

BP=0 then bits are 0 64 128 192 (pairs are 00 01 10 11)
BP=1 then bits are 0 16 32 48
BP=2 then bits are 0 4 8 12
BP=3 then bits are 0 1 2 3

To actually plot points you will need to read the memloc+base address AND with 255 (192 4 12 or 3) and then OR with the appropriate bits The AND is needed to zero any bits that might be set in the pair

Not that the colours are limited to 4 per 4x8 square with the background colour being the same all over the screen So if you POKE 24576 228 (11 10 01 00) and then POKE 53281 0 POKE 23843 1*16+2 POKE 55296 3 you should see from the left the colours cyan red white and black

Colourful Commodore

J Aitken of Blackpool Lancs writes

Q I have a Commodore 1901 colour monitor and I would like to connect it to my video recorder to get a good picture I have tried connecting the video output to the Lum input and get a black and white picture How can I get colour, and is the sound input compatible with the video recorder's output?

A The 1901 has separate inputs for colour and brightness video recorders send out their signal as composite colour and brightness All you need to do to get colour is connect the video signal to both colour and Lum inputs at once

The sound input for the monitor is compatible with the Hi-Fi 1KΩ standard so if your video has the same output and most of them do then you will be able to connect the sound output directly to the monitor input

Happy viewing!

Colour blindness

Keith Platts of Billingham Cleveland writes

Q I own a CPC464 and am trying to connect it to a Ferguson TX 9G9 TV/Monitor Although this is easily done with a ready made lead, the full range of colours are unavailable – only 9 out of the 26 Is it possible to connect and get the full range of colours with this monitor, and if so how?

A It sounds as though the cable may be wired up wrongly The Amstrad RGB is as far as I know standard Check that the Lum pin has been connected if there is one on the TX if not then this may be the cause of the trouble

Alternatively there are two types of RGB signal linear and non-linear, it may be that the TX is expecting the opposite to that which the Amstrad puts out if this is the case, there is no way you will get all the colours from the Amstrad onto the TX

How to do pokes

Colin Robertson of London E2 writes

Q Can you explain to me how you write "Pokes" for games?

A I presume you mean cheat pokes inserting different numbers into the code to get more lives, higher score immunity from death and so on

I've only ever done it for a few games and then to a certain extent by trial and error How it is done depends on the machine and how well the game is protected

First of all you really need to look at the code and work out what it does while you are doing this you will generally find that messages such as You lose sucker can be located These can be edited and personalised quite easily by finding their absolute location in memory when the game is loaded and then overwriting with the new text Once the new section is in run the game by calling (call sys print usr etc) the address of the start of the game

Altering other sections of the game calls for a little more knowledge of machine code plus a disassembler Again depending on the machine the start address of the game can be found from the header on the tape or by looking at the system load address memory location after the game has been loaded but not run Start disassembling from here and you should find that the setup routines that define things like the number of lives can be found If you look at where the data for lives is loaded from you can then alter it so that when the game is run you live longer

Midi Master for your Atari blaster

Mark Jenkins brings news of a new music package for the Atari and Commodore ranges

It's good to see some of the simpler micros being supported by powerful music software, and the 2 Bit Systems *Midi Master* fills the bill for the Atari 800/800XL/130XE micros (with 48k memory). It's a hardware/software package, but the hardware is very simple – a multipin plug for the Atari's serial disc drive socket, leading to a pair of Din plugs marked I and O (for Midi In and Out).

And the software comprises two discs (or one tape), one for the operating system and one for examples. Music is played via Midi, so you'll need appropriate synthesisers – the software plays up to eight monophonic tracks, so two Casio CZ101s in solo mode will fit the bill admirably. We seem to keep returning to the CZ101, but for the past 18 months or so it has been by far the most practical way in to Midi synthesis, offering powerful eight-note chords or four different monophonic sounds simultaneously for around £240.

So the software is in effect a self-sufficient real time eight track sequencer or composer, but it's also useful for owners of the *Atari Music Composer* cartridge or the disc version of the *Advanced Music System*, since the demo programs included can play tunes from these packages over Midi, either polyphonically over a single Midi channel or monophonically on four different channels simultaneously (which neatly covers the two options offered by the CZ101).

The package also offers two sound editors for the CZ101 and for the budget Yamaha DX100, which in some ways sounds more powerful although it doesn't have the four voice multitimbral playing option. These allow you to create new sounds and store them to disc or tape, which is a valuable option since both keyboards rely on single data entry sliders for editing and neither has a very informative LCD display.

The main music screen of *Midi Master* is divided into a status line at the top showing memory remaining and metronome time, and the status block which has a section for each of the eight tracks. The Metronome gives audible clicks between 0·1s and 3·1s apart (you can disable the metronome by setting its speed to zero) and the eight track sections each have the following parameters:

Rec – enable recording and set Midi channel from one to 16
Ply – enable play and select Midi channel
Pgm – transmit a memory number from zero to 127 over Midi before play commences. You have to take into account that some synths number patches from 00, others from 01 and others from 11 to 88 in banks of eight
Trp – transpose pitch of track in semitones plus or minus 99
Rep – number of repetitions of a track
Lead – delay lead-in time of a track in 100ths of a second to compensate for delays in long chains of midi instruments
Gap – control time interval between repetitions of a track

The *S*, *L*, *W*, *P*, *R* and *T* keys control *Save*, *Load*, *Wipe* (erase a single track), *Play*, *Record* (one or more tracks simultaneously with an eight beat count in if the metronome is enabled) and *Time* (re-time the notes of any track by tapping out the new rhythm on this key).

As you can imagine, *Midi Master* is very easy to use, but since there are no facilities for advanced composition such as track copying, song editing or step time entry of complex phrases, it could become limiting. I don't have much idea of the total capacity – but then my copy of *Midi Master* stubbornly refused to load, so don't expect any deeply considered opinions on the thing.

2 Bit itself describes the playback facilities for *Music Composer* and *Advanced Music System* files as having some limitations, mainly due to the fact that a lot of effects on these packages are created by repeating notes and envelopes, which doesn't have the same effect over Midi. Future versions are likely to support velocity recording and to cope with the more tractable *Bank Street Music Writer* and Activision *Music Studio* packages.

As for the patch editing facilities – well obviously these will only be of any interest to you if you already have a CZ101 (or 1000, 3000, 5000 or 230S, which can *only* be edited via Midi) or a DX100 (or 21 or 27). The Casio version consists of a simple table of parameters which are altered using the cursor keys, which move an orange blob around the screen, and the DX version transfers sounds to the micro and exhorts you to edit the raw Midi parameter data. A valuable facility though, with CZ storage cartridges being very expensive and the DX100 saving only onto boring old cassette.

2 Bit also has a package called *Percussion Master* at £29.95, and this will allow you to load and play up to nine eight-bit samples through a hi-fi or other amplifier and string them into 32 patterns of between four and 32 beats. It's three-drum polyphonic, which means that you can have a hi hat occuring on a beat which is already occupied by a bass and a snare, for instance.

Midi Master is £27.50 by mail from 2 Bit Systems, 44 Morcom Road, Dunstable LU5 4EG.

Exciting news from Steinberg, which has completely re-vamped its range of computer music products and introduced several new items and updates.

The *Pro 24* package (£250) for the Atari 520ST/1040ST, which allows you to compose 24 channels of polyphonic Midi information, is now capable of reading the SMPTE code used to synchronise music to films and video. Steinberg have cannily introduced a SMPTE code generator which connects to the micro's RS232 port – it will be around £600.

Also on the Atari front, a music notation/scorewriter program, and a visual editing package for the Akai S900 sound sampler, which is becoming very popular (due November/December, prices to be announced). The latter package will include the ability to convert S900 files to Prophet 2000/2002 files, which is good news for owners of either sampler (assuming they want to pinch each other's sounds!)

For the Commodore, Steinberg has re-packaged the Pro 16 composer on a cartridge so you don't have to load the software from disc at the start of each session. Pro-16S is £239 and has sync to tape and graphic editing capabilities, and Pro 16 Plus at £299 also has a scorewriting function.

On disc, the range now includes editors and sound library packages for the budget Roland Alpha Juno 1&2 (JUNO – £80) and for the powerful Korg DW8000 (DWK – £80). The basic Commodore Midi interface is £55, the INT version with sync to tape is £160.

Steinberg Research, The Spendlove Centre, Charlbury, Oxford OX7 3PO. Tel 0608 811325.



All aboard for Ireland

A new board for Ireland, an ST special, and answers to readers' queries from David Wallin

Lots more letters to answer this week, to start off with, queries about new boards.

The first board is called Dubbs, and going by its specifications, it's some sort of super-board. Dubbs is the only board I know of that runs in the Republic of Ireland and the sysop (Stephen Kearon) says it is the first.

This, claims Stephen, has attracted a good deal of interest in the board which has resulted in Miracle Technology donating a V22bis WS3000 modem (one of the top modems available, and is in the same range as Pace's Series 4).

This sounds like a good deal to get started with until you hear which computer was donated: a Commodore Amiga with three $3\frac{1}{2}$ inch drives and hard disc promised soon. The Amiga was donated by the Tomorrow's World Group in Dublin.

Sounds a good board (it certainly ought to be!), so why not give it a ring on Dublin 885634 (to ring Dublin from within the UK, dial 0001 (number))? The hours are 8pm till 8am, Monday to Friday, and 24 hours at the weekend. Speeds of access are just about all the ones I can think of: 300/300, 1200/75, 1200/1200 and 2400/2400 baud (a couple missing like 75/1200 and 600/600 but hardly anyone uses these speeds; come to think of it, who uses 2400/2400 baud). The modems cost a fortune – in excess of £500. The format of the speed (ie, Bell or CCITT, not data protocol) was not stated so CCITT will work, but I think the WS3000 is a Bell modem as well, and Bell tones may work. The data protocol (word length, start bits and stop bits) is either 8N1 (standard BB) or 7E1 (Viewdata – Prestel and Communitel boards), automatically detected on 1mg rin. Some Viewdata terminal software does *not* allow any sort of scrolling and these won't work – if you're not sure about your software, give Dubbs a try and find out.

Now for some details on the board called ACS BBS, sponsored by Atlas Computer Supplies. It is aimed particularly at ST users and this is reflected in particular by free downloads for the ST and an ST programming Sig which contains most of the source codes for the finished programs.

> *"ACS BBS has a competition Sig which donates any money it generates to charity. It is the first board I know of to do this, and it is aimed particularly at ST users"*

The sysop, Paul Camillen, who runs the board on behalf of Atlas Computer Supplies, feels that there are a lot of ST users out there with communications software and hardware who are just waiting for and need a BBS of this sort. It also has a competition Sig which donates any money it generates to charity, and the first board I know of to do this. Personally I think it's a good thing. One thing that may be of interest is the sysop's Telecom Gold mailbox number which is 72 MAG90433.

The speeds are V21/V23 (300/300 or 1200/75) with an 8N1 protocol (standard BB protocol). It's online from 10pm till 9am, seven days a week. Lastly, the phone number: 01 591 8687. Although I said the board seems to be aimed at ST users, you can log on without an ST if you want.

Next on to a problem. Mike Westgate of Berks has E-Mailed me telling of his problem concerning using Joyce to access Viewdata systems. He says that Sage Soft's *Chit Chat Club* doesn't handle colour text and backgrounds very well and when the two are encountered on one frame its content is hidden. Try phoning Sage Soft, Mike, and ask its technical staff for help as you can give them a detailed description of what's happening and they may have some ideas.

If not, secondly you could try a different piece of software. I can recommend *Comm+* from Modem House. The big difference you will notice between *Comm+*'s viewdata screens and *Chit Chat*'s is the *Comm+*'s are 40 column and take up just under half of the screen, whereas *Chit Chat* uses the full screen.

I cannot guarantee that *Comm+* will not have the same problem, but I have never encountered it (either with *Comm+* or *Chit Chat*). Contacting Margolis, which wrote *Comm+*, may give you a guarantee or at least some help as to whether or not it will happen. Margolis' address is 105 Foundling Court, Brunswick Centre, Marchmont Street, London WC1N 1AN. I've no phone number for them, I'm afraid.

The next problem is from Bob Macmahon, simply asking for help or advice with the VTX 7-11 package, especially on 300/300 baud as he appears to have problems. If anyone out there has any possible answers, then phone Prometheus (the board with my communications section) and select number eight from the main menu and leave the answer: it will be put up on the board where Bob can see it. Prometheus is a Viewdata board and the number is 01 300 7177. If you don't have a Viewdata emulator on your software then either E-Mail or snail mail me and I'll make sure Bob sees it. I'll also print any advice on the VTX 7-11 in the magazine as, from what I can make out, others are having problems with the 7-11 package as well.

One quick question from Glen – left on Prometheus with no surname. Is 300/300 available on a VTX 5000? Well, I'm not sure, but I've heard people talk about this a bit and I think it is possible to get 300/300 on the VTX 5000 somehow. If anyone out there has done so, or knows how to, please let me know as I think others would also like to know.

Nick Morris wants to know of Amstrad speciality boards. Well, there's Ros PCW for Amstrad PCW 8256 owners; the number for Ros is 0902 788683 at 300/300 baud. There are others, and I'll let you know of them in a week or two when I've sorted some out.

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New Releases

Pick of the week

John Cook looks through this week's new arrivals

Amstrad CPCs

Program *Kwah!* **Type** Graphic adventure **Price** £8 95 **Micro** All CPCs **Supplier** Melbourne House 60 High Street Hampton Wick Kingston Upon Thames Surrey KT1 4DB

Program *Back to Reality* **Type** Arcade **Price** £1 99 **Micro** All CPCs **Supplier** Mastertronic 8–10 Paul Street London EC2

Program *ZUB* **Type** Arcade **Price** £2 99 **Micro** All CPCs **Supplier** Mastertronic 8–10 Paul Street London EC2

Program *Kentilla* **Type** Adventure **Price** £1 99 **Micro** All CPCs **Supplier** Mastertronic 8–10 Paul Street London EC2

Program *1942* **Type** Arcade/simulation **Price** £8 95 cassette £14 95 disc **Micro** All CPCs **Supplier** Elite Systems Anchor House Anchor Road Aldridge Walsall WS9 8PW

Program *Infiltrator* **Type** Arcade/simulation **Price** £9 95 **Micro** All CPCs **Supplier** US Gold Unit 2 and 3 Holford Way Holford Birmingham B6 7AX

Atari XL/XE

Program *Crystal Raider* **Type** Arcade **Price** £1 99 **Micro** Atari 8-bits **Supplier** Mastertronic 8–10 Paul Street London EC2

Program *Atari Smash Hits Volume 6* **Type** Compilation **Price** £9 95 twin cassette £14 95 twin disc **Micro** Atari 400/800/XL/XE **Supplier** English Software 1 North Parade Parsonage Gardens Manchester M60 1BX

Atari ST

Program *Strip Poker* **Type** Simulation **Price** £19 95 **Micro** Atari ST **Supplier** Anco 35 West Hill Dartford Kent DA1 2El

Program *World Games* **Type** Simulation **Price** £24 99 **Micro** Atari ST **Supplier** US Gold Unit 2 and 3 Holford Way Holford Birmingham B6 7AX

Program *Jewels of Darkness* **Type** Adventure **Price** £19 95 **Micro** Atari ST **Supplier** Rambird 74 New Oxford Street London WC1A 1PS

Having been converted to virtually every other format the Level 9/Rainbird package *Jewels of Darkness* has now been released for the Atari ST Unfortunately despite Rainbird s claims the graphics in the adventures have not been improved from the versions for eight-bit machines in fact they are probably the worst illustrations I can recall on any graphic adventure for the ST

Still in the ST market £20 for three good adventures represents excellent value for money

Commodore 16/Plus 4

Program *Kane* **Type** Arcade **Price** £1 99 **Micro** C16/Plus/4 **Supplier** Mastertronic 8–10 Paul Street London EC2

Program *Bridgehead* **Type** Arcade **Price** £5 95 **Micro** C16/Plus/4 **Supplier** Anco 35 West Hill Dartford Kent DA1 2EL

No holds barred

Whatever you care to call them – Dungeons & Dragon s role-playing games – programs like *The Bard* have been around almost as long as the microcomputer itself

But *The Bard* is state of the art The game universe has been well thought out lots of magic character classes attributes and weapons lots of graphics and some good sound effects

There are some highly original touches too For example the game is named for the key player in your adventuring party the bard himself The bard weaves about by playing and singing magical tunes But when his throat get dry you ll have to run for the nearest tavern and get some ale down him

There s plenty of exploring for map freaks loads of atmosphere for adventuring types and buckets of blood for barbarous hack n slayers

The only thing to be said against it is that it s completely disc based so not only do you need a drive but patience as well because certain actions involve a fair bit of disc access

But this is a minor quibble *The Bard* looks destined to be a classic Watch out for a full review next week

Program *The Bard s Tale* **Type** Role playing adventure **Price** £14 95 disc only **Micro** Commodore 64/128 **Supplier** Ariolasoft Long Acre London WC2

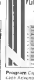
Commodore 64/128

Program *Kwah!* **Type** Graphic adventure **Price** £8 95 **Micro** Commodore 64 **Supplier** Melbourne House 60 High Street Hampton Wick Kingston Upon Thamea Surrey KT1 4DB

Program *Back to Reality* **Type** Arcade **Price** £1 99 **Micro** Commodore 64 **Supplier** Mastertronic 8–10 Paul Street London EC2

Program *1942* **Type** Arcade/simulation **Price** £9 95 cassette £14 95 disc **Micro** Commodore 64 **Supplier** Elite Systems Anchor House Anchor Road Aldridge Walsall WS9 8PW

Program *Computer Hits 10 Volume 3* **Type** Compilation **Price** £9 95 **Micro** Commodore 64/128 **Supplier** Beau Jolly 29A Bell Street Rei gate Surrey



Program *Captured* **Type** Arcade Adventure **Price** £9 95 cassette £14 95 disc **Micro** Commodore 64/128 **Supplier** American Action Box 10090 200 43 Sweden

The Swedes have no great reputation in the software market and looking at *Captured* from American Action of Malmo it's not hard to see why.

Captured is a platform game with over 100 screens to try your patience. It has everything every other platform game has: moving bits, sprites and things and also some smart bombs which clear all the bad blobs off the screen. The graphics are staggeringly unoriginal and a mournful little tune accompanies the whole dismal affair.

Animation of your sprite is smooth enough but turning around is slow, usually fatally slow. If you're a platform game junkie then here's another one to consider. For me this program totally failed to capture my interest.

Program *ZUB* **Type** Arcade **Price** £2.99 **Micro** Commodore 64 **Supplier** Mastertronic, 8–10 Paul Street, London EC2

Program *World Games* **Type** Simulation **Price** £9.99 cassette, £14.99 disc **Micro** Commodore 64 **Supplier** US Gold, Unit 2 and 3, Holford Way, Holford, Birmingham B6 7AX

Commodore Amiga

Program *Jewels of Darkness* **Type** Adventure **Price** £19.95 **Micro** Amiga **Supplier** Rainbird, 74 New Oxford Street, London WC1A 1PS

IBM PC Compatibles

Program *Dambusters* **Type** Simulation **Price** £19.99 **Micro** IBM and compatibles **Supplier** US Gold, Unit 2 and 3, Holford Way, Holford, Birmingham B6 7AX

Program *Bruce Lee* **Type** Simulation **Price** £19.99 **Micro** IBM and compatibles **Supplier** US Gold, Unit 2 and 3, Holford, Birmingham B6 7AX

Program *World Games* **Type** Simulation **Price** £24.99 **Micro** IBM and compatibles **Supplier** Epyx/US Gold, Unit 2 and 3, Holford Way, Holford, Birmingham B6 7AX

Spectrum

Program *ZUB* **Type** Arcade **Price** £2.99 **Micro** Spectrum 48/128 **Supplier** Mastertronic, 8–10 Paul Street, London EC2

Program *Prehistoric Adventure* **Type** Text adventure **Price** £9.95 **Micro** Spectrum 48K **Supplier** Crusader Computing, 18 Henley Wood Road, Earley, Reading, Berks RG6 2EE

Straightforward text adventures still find a place in the hearts of many adventurers – "the atmosphere created by text is much more evocative than some rather primitive pictures" is the most commonly heard quote from the traditionalists.

Unfortunately, atmosphere created by text all too often means sub-Tolkien prose rather than rich evocative description.

Prehistoric Adventure, written by a new company, Crusader Computing, does rather fall into this trap: alternative olde worlde screen font and "the Bold Adventurer heads westward knowing that he alone can save the Old Man now".

However, for the text adventure fan it may well be worth a look. Set around Stonehenge in a world populated by dinosaurs and other prehistoric animals, your quest is to find and bring back the legendary Amaranth fruit from a distant island in order to brew an elixer of life.

The parser accepts two words per move of a verb-noun format only, which in these days of Infocom and Level 9 scenarios is a bit limiting. Apart from the prehistoric animals, I doubt there's anything remarkably novel about the adventure, but I suspect it'll have your brain working in overdrive if you get into it.

Oh yes, and there's a free glossy wall chart depicting various Stone Age animals – clear a space on your bedroom wall now!

Program *Swords of Bane* **Type** Fantasy/wargame **Price** £7.95 **Micro** Spectrum 48K, with expanded 128K version **Supplier** CCS, 14 Langton Way, London SE3 7TL

Don't all shout at once if I'm wrong, but I think that this is the first strategic computer game with a fantasy scenario. You control a unit of the Imperial guards, sent out to quell an invasion of monsters. After selecting your team from the various wizards and warriors available, you proceed to battle, using either joystick or keyboard to position your forces.

There are two versions of the game on the cassette: the 128K version contains three scenarios rather than one and has a larger playing area.

The map graphics are clear and colourful, and the strategy involved in marshalling your wizards and warriors to defeat the enemy is considerable. Movement points, weapons ranges and all the usual paraphernalia of strategy games are included.

Swords of Bane deserves a look by fantasy fans and strategists alike; note though that there is no two player option, the little demon living in your computer is the only opponent available.

Charts

Top Twenty

1	(2)	Infiltrator	Mindscape/US Gold
2	(13)	1942	Elite
3	(1)	Fist II	Melbourne House
4	(5)	Trivial Pursuit	Domark
5	(3)	Paperboy	Elite
6	(8)	Ninja Master	Firebird
7	(19)	Computer Hits Vol 3	Beau Jolly
8	(12)	Lightforce	Faster Than Light
9	(4)	Druid	Firebird
10	(6)	Thrust	Firebird
11	(9)	Ghosts and Goblins	Elite
12	(7)	Dragon's Lair	Software Projects
13	(11)	Ollie and Lisa	Firebird
14	(—)	The Great Escape	Ocean
15	(10)	Dan Dare	Virgin
16	(—)	Warhawk	Firebird
17	(—)	Dandy	Electric Dreams
18	(—)	180	Mastertronic
19	(18)	Go for Gold	Americana
20	(—)	Happiest Days	Firebird

All figures compiled by Gallup/Microscope

Ziggurat

A musical carthorse

I remember when I first acquired a home computer, and would continually sound off about its talents and skills to all available friends and relations My sister in-law asked But could it do the *Guardian* crossword? (She can you see with devastating speed so uses this as a benchmark of smartness)

I pondered for a while and said I think it could do anagrams In fact this became my first real programming project (and one I recommend to computer novices) I struggled with problems of string slicing and permutation for a good while before I came up with some inelegant Basic that managed to print all the possible anagrams of a given word

Even as I congratulated myself though I realised that the program would be little use to a crossword solver Input a three letter word and the six possible variations would come smartly on screen Input four letters and the 24 permutations would print up most efficiently But nobody whose IQ much exceeds their shoe size has great trouble with four letter anagrams

A five letter input puts you to the bother of sorting through 120 possible answers and six letters (when anagrams are only beginning to become tricky) produce 720 permutations Seven letters multiply those possibilities by seven – to 5040 And should you be seeking a musical version of *carthorse* you d find the elegant answer *orchestra* hidden among 362 880 combinations that those nine letters could transform to

My sister-in law could finish off several whole puzzles (including a couple of alphabetical jigsaws) before any human could read through all that monstrous list So perhaps we should make the computer read it matching each permutation against a dictionary until it finds one that makes English sense Maybe but that sort of brute-force solution seems very clumsy

The reason for that is it s emphatically not the way that human anagram solvers work I presented some twelve-year olds with "*Old West action*" and one took only three minutes to find the answer (*Clint Eastwood*" of course!) His mind certainly hadn t toiled methodically through the *six thousend million* (honestly!) possible combinations of those 13 letters

How he did it is probably a mystery to him Most of us find that at one moment the letters seem intractable the next the answer is obvious Possible syllables shift about in our minds as we use our sense of the way words work and instinctively ignore most of the non starters (*lodwestaction odlwestaction dolwestaction*) that my simple-minded computer program wastes so much time on

Douglas R Hofstadter (the *Godel Escher Bach* author who has sent thought about Artificial Intelligence racing in many interesting and unexpected directions) has written The anagrams problem is one that exemplifies mechanisms of thought that AI people have not explored

How do those letters swirl among one another fluidly and tentatively making and breaking alliances? Glomming together then coming apart almost like little biological objects in a cell It is obviously more related to creativity and spontaneity than it is to logical derivations but that does not make it – or the mode of thinking that it represents – any less worthy of attention

A program that could embody one s sense of English word structure, that could find likely syllables and try to tack them on to others could discriminate between promising and unpromising combinations of letters could leap from a central syllable to a sense of the entire word and above all could recognise a satisfying solution when it found one – that would be a real step towards Artificial Intelligence I wonder how it d compete with my sister in law?

George Simmars

NEXT WEEK

SPECIAL SUPPLEMENT

Buyers guide to peripherals

Over the next three weeks *Popular* will be publishing comprehensive guides to the best buys in peripherals micros and software

By the end of the series your Christmas list (yes, it's nearly that time of year again) should be complete and you can rest secure in the knowledge that there will be no excuse for getting duff presents this time

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Hardware

The Acorn Master Compact – the latest in Acorn s series based on the BBC B

Chess

More news from the world of computers and chess from *Colossus* author Martin Bryant

Hackers


DANTE'S
INFERNO
AN ANIMATED ARCADE ADVENTURE FROM HELL AND BEYOND
BEYOND

Fairlight



THE EDGE

The Epic continues . . .